

US EPA ARCHIVE DOCUMENT

Prepared for:

Waste Management of Virginia, Inc.
King George Recycling and Waste Disposal Facility
10376 Bullock Drive
King George, Virginia 22485

**LANDFILL BIOREACTOR PROGRAM
JULY 2003 SEMI-ANNUAL REPORT OF
MONITORING ACTIVITIES**

**KING GEORGE RECYCLING AND
WASTE DISPOSAL FACILITY**

**King George County, Virginia
VADEQ Solid Waste Permit No. 586**

Prepared by:



GEOSYNTEC CONSULTANTS

10015 Old Columbia Road, Suite A-200
Columbia, Maryland 21046

Project No. ME0284

17 July 2003

1.	INTRODUCTION	1
1.1	Terms of Reference	1
1.2	Project Overview	1
1.3	Report Organization	2
2.	REQUIREMENTS OF FEDERAL REGISTER SITE SPECIFIC RULE MAKING	4
3.	REQUIREMENTS OF VADEQ EXPERIMENTAL PERMIT	7
4.	MONITORING PROGRAM AND SAMPLING AND ANALYSIS ACTIVITIES.....	9
4.1	Monitoring Program	9
4.2	Field Sampling Activities	11
4.2.1	Leachate Quality	11
4.2.2	Landfill Gas Quality	12
4.2.3	Solid Waste Sampling	12
4.3	Laboratory Analysis Program	12
4.3.1	Leachate Quality	12
4.3.2	Landfill Gas Quality	12
4.3.3	Solid Waste Composition	13
4.4	Other Data	13
4.4.1	Leachate Generation Quantities	13
4.4.2	Quantity of Liquid Applied to Landfill	13
4.4.3	Landfill Settlement	13
5.	DATA ANALYSIS	14
5.1	Leachate Quality and Quantity	14
5.2	Landfill Gas Quality and Quantity	15
5.3	Solid Waste	15
6.	CONCLUSIONS	17
7.	REFERENCES	18

TABLES

Table 1	2003 Monitoring Calendar
Table 2	Summary of Sampling Activities
Table 3	Leachate Analysis Parameters
Table 4	Landfill Gas Data
Table 5	Example of Leachate Quality Data
Table 6	Summary of Leachate Quantity Data
Table 7	Liquid Application Summary
Table 8	Summary of Landfill Settlement Data
Table 9	Rainfall Data Summary
Table 10	Summary of Waste Characterization Data

FIGURES

Figure 1	Existing Conditions
Figure 2	Liquid Applied to Landfill – Cumulative
Figure 3	BOD/COD Ratio
Figure 4	COD/TOC Ratio
Figure 5	Chloride Concentration
Figure 6	Nitrate Nitrogen Concentration
Figure 7	Ammonia Nitrogen Concentration
Figure 8	Variation in pH
Figure 9	Landfill Gas Quantity Data
Figure 10	Landfill Gas Quality Data – Methane
Figure 11	Landfill Gas Quality Data – Carbon Dioxide

DRAWINGS

Drawing 1	Existing Conditions (CAD)
Drawing 2	Settlement Monitoring Plan (CAD)

APPENDICES

Appendix A – Leachate Quality Test Results

- January 2003
- February 2003
- March 2003
- April 2003

Appendix B – Daily Liquid Application Log

Appendix C – Settlement

- November 2002

Appendix D – Landfill Gas Data

- January 2003
- February 2003
- March 2003
- April 2003

Appendix E – Groundwater Quality Compliance

1. INTRODUCTION

1.1 Terms of Reference

The purpose of this semi-annual monitoring report is to present the results obtained between January 1, 2003 and June 30, 2003 of the Landfill Bioreactor Program at the King George Recycling and Waste Disposal Facility (King George Landfill) in King George County, Virginia. The bioreactor study is being performed by Waste Management of Virginia, Inc. (a Waste Management, Inc. (WMI) company) under the United States Environmental Protection Agency's (USEPA's) Project XL program. This monitoring report was prepared for the Virginia Department of Environmental Quality (VADEQ) by Mr. Douglas T. Mandeville and was reviewed by Mr. Thomas Ramsey, P.E., and Mr. Michael F. Houlihan, P.E., of GeoSyntec Consultants (GeoSyntec), in accordance with the internal peer review policy of the firm. This report describes the monitoring activities between the above mentioned dates. To aid in the interpretation of the data, the tables and figures contain all of the data collected since leachate recirculation began on November 1, 2002.

1.2 Project Overview

The King George Landfill is located in King George County, Virginia, approximately 50 miles north-northeast of Richmond, Virginia. The waste disposal area will cover a total area of approximately 290 acres upon completion. Construction of the first cells started in 1996 and construction of additional liner area has been performed every year since. The King George Landfill was constructed having a geomembrane composite double-liner system, with primary leachate collection and leak detection (secondary collection) layers. The current configuration of Cells 1 through 4, including the recirculation trenches, is shown in Figure 1 and in Drawing 1. As part of the XL program, Cell 3 is operated as a bioreactor (i.e., leachate is recirculated), whereas Cells 1, 2, and 4 are operated as standard landfill cells (i.e., no leachate is recirculated). Cell 3 of the King George Landfill is referred to as the test area. Cells 1, 2, and 4 are referred to as the control area.

A landfill becomes a bioreactor when leachate and other liquids are added to the landfill. The purposes of operating a landfill as a bioreactor are to increase the rate of biodegradation in the landfill and to facilitate the management of leachate and other waste liquids. The original intent of the XL program was to recirculate all of the

leachate generated at the site, plus an additional amount of non-hazardous liquids. The goal is to recirculate between 7 million and 8 million gallons of leachate and other non-hazardous liquids per year. This is approximately twice the typical leachate generation rate at King George. WMI will seek to recirculate this amount, while maintaining compliance with applicable rules and regulations. At the time when the program was initially implemented, an increase in the occurrence of leachate seeps was observed, causing site personnel to reduce or curtail recirculation operations. In the interest of maintaining good landfill operating practices and complying with environmental protection regulations, the actual amount of leachate recirculated may be less than 8 million gallons per year. The amount of liquid applied to the waste will vary based on site inspections and observations. Regardless of the quantity of leachate recirculated, the requirement to perform monitoring during the course of the program will continue.

It is anticipated that the operation of Cell 3 as a bioreactor will result in several environmental and cost saving benefits including, but not limited to, the following: (i) decreased leachate management costs; (ii) increased waste density in the landfill; (iii) reduced period of landfill gas generation; and (iv) improved long-term leachate quality. These benefits are discussed in depth in WMI's Project XL application [GeoSyntec, 2000].

The performance of the landfill is evaluated based on measurements of critical chemical and physical parameters associated with the solids, liquids, and gasses obtained from the test and control areas. Parameters to be measured include: settlement, leachate quantity, leachate quality, in-place density of waste, and air quality. The parameters measured in the bioreactor (i.e., test area) are compared to similar parameters measured from the control area.

1.3 Report Organization

In this report, the results of the analytical tests conducted during calendar year 2002 are provided. The organization of this report is described below.

- Section 2 addresses the Federal Register site specific rule making.
- Section 3 presents the requirements of the VADEQ Experimental Permit.

- Section 4 describes the sampling and sampling and analysis activities performed during the first half of calendar year 2003.
- Section 5 describes the analytical test results and other data collected during the first half of calendar year 2003.
- Section 6 presents closing comments.
- Section 7 provides references.
- Appendix A presents the leachate laboratory analysis results.
- Appendix B presents the liquid application logs (a daily and monthly liquid application summary is presented in Table 7).
- Appendix C presents the settlement data.
- Appendix D presents landfill gas data.
- Appendix E presents groundwater quality compliance data.

2. REQUIREMENTS OF FEDERAL REGISTER SITE SPECIFIC RULE MAKING

On July 18, 2002, the EPA promulgated a site-specific rule to implement this project under the USEPA's Project Excellence and Leadership Program (Project XL). This rule was published in the Federal Register and provides site-specific regulatory flexibility under the Resource Conservation and Recovery Act (RCRA) for the King George Landfill. Part 258, Subpart D of the rule identifies 14 conditions that are to be met while leachate is recirculated at the King George Landfill. The remainder of this section addresses 12 of these conditions; the last two conditions are related to the duration of and compliance with the site specific rule.

- 1) *Item 1 relates to the integrity of the liner system and maintaining less than 30 cm of head on the liner system.* In accordance with Item 1, the integrity of the liner system was maintained during construction of the recirculation trenches and the leachate collection system has been maintained in good operating order. To date, the leachate collection records in the test and control areas do not indicate an increase in the leakage rate through the primary liner system. There is no apparent slippage of the liner system based on daily observations at the site. It should be noted that design calculations that estimate the amount of head on the liner system indicated that up to 7 to 8 million gallons of liquid per year could be added to the test area (approximately 10 acres) and that the head on the liner system would remain less than 30 cm. The liquid application rate is approximately 2.8 million gallons per year based on data collected between November 1, 2002 and December 31, 2002. Therefore, the head on the liner system is expected to be less than 30 cm. Additionally, the leachate collection system has been designed to operate such that the leachate removal pumps turn on when the head acting on the liner system is near 30 cm.
- 2) *Item 2 relates to the Code of Federal Regulations (CFR) Section 258.40.* In accordance with Item 2, the groundwater quality has been monitored and analyzed at the compliance point. This analysis was performed by Joyce Engineering, Inc.; a copy of the letter is presented in Appendix E. Arsenic, Cadmium, and Lead have been detected at concentrations that exceed the current MCL; however, it is noted that the detected concentrations were less than the facility background concentrations at the time of detection.

Consequently, the concentrations did not represent statistically significant concentrations and the monitoring program at the King George Landfill, Permit No. 586, was allowed to continue in the Detection Monitoring Program.

- 3) *Item 3 relates to the occurrence of seeps at the landfill.* Surface seeps have occurred at the King George Landfill after leachate recirculation operations started. These minor seeps were short in duration and were repaired quickly. These seeps are most likely attributed to the leachate recirculation operations at the site. In accordance with Item 3, WMI is in the process of identifying operating procedures that minimize the occurrence of seeps. Because WMI will operate the King George Landfill in an environmentally responsible manner, the amount of leachate that is recirculated may need to be reduced. Hence, the actual amount of leachate recirculated may be less than the target amount of 8 million gallons per year.
- 4) *Item 4 relates to the leachate quality parameters to be analyzed as part of this project.* In accordance with Item 4, the evaluation of the key leachate quality parameters occurred at the frequency presented in the Final Project Agreement [GeoSyntec, 2000] and the VADEQ state permit [GeoSyntec, 2001]. The test results are discussed in Section 5.1. It should be noted that these parameters (or groups of parameters) have been analyzed in leachate samples collected from the test and control areas. Appendix A includes a summary of the leachate parameters that exceeded the MCL or the detection limits. A complete set of laboratory results is available upon request.
- 5) *Item 5 relates to the quantity of leachate applied to the test area and the amount of leachate collected in the test and control areas of the landfill.* These issues are discussed in Section 5.1.
- 6) *Item 6 relates to an initial characterization of the liquid that was added to the test area.* An initial characterization of the leachate added to the landfill was performed in September 2002. The results of this analysis indicate that the leachate is comparable to typical landfill leachate. The results of this characterization are discussed in Section 5.1.

- 7) *Item 7 relates to the occurrence of landfill fires in the test area and the measurement of gas temperature at the wellheads.* The test area at King George has been operated in a manner to prevent landfill fires from occurring. The gas temperature at the wellheads is discussed in Section 5.2.
- 8) *Item 8 relates to topographic surveys at the site.* In accordance with Item 8, one topographic survey was performed in 2002. The survey was conducted in November 2002. Because only one survey was conducted at the King George, settlements cannot be calculated at this time.
- 9) *Item 9 relates to odor complaints resulting from liquid application events.* Several odor complaints were reported at King George during the reporting period. At this time, it is not clear if these odor complaints can be directly attributed to the bioreactor operations.
- 10) *Item 10 relates to an initial waste characterization in the test area of the landfill.* A total of 5 borings were drilled in the summer of 2001. Two of these borings were in the control area and three were in the test area. The results of the laboratory testing of these solid waste samples are discussed in Section 5.3.
- 11) *Item 11 relates to the preparation of semi-annual reports to the EPA Regional Administrator.* The first semi-annual monitoring report was submitted on 8 May 2003. The next semi-annual monitoring report will be submitted in January 2004.
- 12) *Item 12 relates additional monitoring related to the landfill gas.* The monitoring requirements for the New Source Performance Standards and the Title V Air Permit for the site were met. Copies of the wellhead monitoring results and the surface scans are presented in Appendix D.

3. REQUIREMENTS OF VADEQ EXPERIMENTAL PERMIT

On July 18, 2002, the state issued a permit modification allowing bioreactor operations in Phases 1 and 2 at the King George Landfill. Permit module I.F. of the permit amendment issued July 18, 2002, identifies several site specific conditions that must be met while leachate is recirculated at King George. The remainder of this section addresses each of these conditions.

- 1) *Item I.F.1 relates to the issuance of a Certificate to Operate.* Construction of the liquid application trenches was completed within 180 days of the issuance of the permit amendment. A renewal letter to continue recirculation operations will be submitted in July 2003.
- 2) *Item I.F.2 relates to the expiration of the experimental permit and request for a full permit amendment.* This report presents the data obtained during the first half of calendar year 2003. At this time, there is not enough data available to draw conclusions from the experiment. If the project is found to be a success, WMI anticipates submitting a request for a full permit amendment.
- 3) *Item I.F.3 relates to the permitted landfill bioreactor area, Phases 1 and 2.* In accordance with the permit requirements, the liquid application trenches were constructed in Cell 3, and liquid was applied only in this part of the landfill.
- 4) *Item I.F.4 relates to the monitoring, sampling, and reporting requirements.* In accordance with Item I.F.4, the monitoring was completed as identified in Permit Attachment IIB-2. Previous quarterly monitoring reports were submitted in May 2003 and June 2003. It is anticipated that the next quarterly monitoring report will be submitted in September 2003.
- 5) *Item I.F.5 relates to the Title V Air Permit Issued January 10, 2002 and the New Source Performance Standards Subpart WWW.* In accordance with Item I.F.5, WMI complied with the regulations identified in the Title V Air Permit and the New Source Performance Standards Subpart WWW.

- 6) *Item I.F.6 relates to the characterization of leachate as a hazardous waste and the Virginia Hazardous Waste Management Regulations (9 VAC 20-60-10). (It should be noted that leachate is not explicitly listed as a hazardous waste in the Virginia Hazardous Waste Management Regulations). In accordance with Item I.F.6, WMI managed leachate as required by the Virginia Hazardous Waste Management Regulations.*
- 7) *Item I.F.7 relates to the monitoring of leachate head over the liner at its lowest disposal point to ensure that no more than 1 foot of head of leachate accumulated over the liner. The issue of hydraulic head acting on the liner system is addressed in Section 2, Item 1.*
- 8) *Item I.F.8 relates to the closure of the bioreactor landfill area. At this time, WMI plans to continue bioreactor operations in Cell 3 at King George. In accordance with Item I.F.8, WMI will notify VADEQ at least 180 days prior to the anticipated date of closing.*

4. MONITORING PROGRAM AND SAMPLING AND ANALYSIS ACTIVITIES

4.1 Monitoring Program

As shown in Table 1, the monitoring activities at the King George Landfill consist of tracking the quality and quantity of leachate, landfill gas, and solid waste in the test and control areas. Detailed monitoring activities for the Landfill Bioreactor Program are described in the document entitled, "*Monitoring, Sampling, and Analysis Plan*" (Monitoring Plan) [GeoSyntec, 2001], which is contained in the permit application submitted to VADEQ. As part of the USEPA XL program and VADEQ permit requirements, a series of site-specific rules and monitoring requirements have been developed. The USEPA site-specific rule appeared in the Federal Register on 18 July 2002; these requirements are addressed in Section 2 of this report. The VADEQ site-specific permit requirements appeared in the state permit modification issued for the site on 18 July 2002; these requirements are addressed in Section 3 of this report. Table 1 shows the schedule for the 2003 monitoring events; Table 2 summarizes the dates and sampling events that occurred to date. The leachate monitoring events include collecting leachate samples from the control area and the test area for subsequent laboratory analysis. The landfill gas monitoring events includes measuring landfill gas composition at the wellheads in the control and test areas, obtaining landfill gas composition samples, and performing a surface scan to measure surface emissions. The solid waste monitoring event includes obtaining waste samples for subsequent analysis. In addition to these field monitoring events, leachate generation volumes, liquid application volumes, and landfill settlement are monitored.

The purpose of the monitoring program is to evaluate the performance of the landfill bioreactor throughout the duration of the project. The evaluation is based on the following performance criteria:

- leachate quality and quantity;
- landfill gas quality and quantity; and
- solid waste decomposition/stabilization.

The manner in which these criteria are being evaluated is described in the following three subsections.

Leachate Quality and Quantity

Sampling activities are conducted in both the test area and control area. Leachate sampling was conducted in Cells 1, 2, 3, and 4, and at the leachate storage tank, according to the frequency described in Table 1. Leachate samples are collected by filling the appropriate sample bottles directly from the sampling ports from the primary leachate collection system for the respective phase being sampled. The sampling ports for each of the primary leachate collection systems are located within the vault/riser house of the leachate collection system for each phase. The specific parameters measured, and the associated test methods, are provided in Table 3. Several key parameters that identify the presence of biological processes in the landfill have been identified (Pohland and Harper, 1986) and are presented in detail in this report. These parameters include: (i) Biological Oxygen Demand (BOD); (ii) Chemical Oxygen Demand (COD); (iii) Total Organic Carbon (TOC); (iv) Chloride; (v) Sulfate; (vi) Nitrate as Nitrogen; and (vii) Ammonia as Nitrogen. From these indicators, a qualitative inference can be made regarding the degree of organic composition of landfill wastes.

In addition to evaluating the leachate quality in the landfill over time, the amount of liquid added to the leachate recirculation trenches and the amount of leachate collected in the leachate collection sumps was recorded.

Landfill Gas Quality and Quantity

Measurements of landfill gas quality are obtained from composite gas samples of the landfill gas collection system. The parameters measured and the test methods for the landfill gas monitoring and sampling are described in the Monitoring Plan [GeoSyntec, 2001]. The non methane organic compounds (NMOCs), gas samples were obtained in accordance with the requirements of USEPA Method 25 and samples obtained for volatile organic compounds were obtained in accordance with USEPA Method TO-14.

Landfill gas monitoring is performed at each of the existing landfill gas wells to monitor activity within the test and control areas. Measurements of methane (CH₄), oxygen (O₂), carbon dioxide (CO₂), temperature, and flow rate were obtained from each gas well using portable field instruments, (i.e., a Landtech, Inc., GEM 500). Hydrogen

sulfide (H_2S) measurements were obtained using a GasTech GT-2 Hydrogen sulfide detector.

Surface emissions monitoring is performed in accordance with the requirements specified by the New Source Performance Standards (NSPS) and Emissions Guidelines (EG) for MSW landfills [40 CFR 60.755]. Methane concentrations were measured within 5 to 10 centimeters (2 to 4 inches) from the landfill surface in the test and control areas.

Solid Waste Decomposition/Stabilization

To evaluate the degree of decomposition of the solid waste, a series of borings were drilled in the test and control areas in 2001. Samples of the solid waste were obtained from these borings. The parameters evaluated from these solid waste samples include: (i) moisture content; (ii) cellulose; (iii) lignin; (iv) pH; and (v) biochemical methane potential. The moisture content is the percentage of water that is present in the waste. Cellulose is the portion of the volatile solids that will degrade over time; lignin is the portion of the volatile solids that will not degrade. Biochemical methane potential is a measure of how much methane the waste may generate.

To evaluate waste settlement in both the test area and the control area, a series of topographic surveys of the test and control areas are conducted.

4.2 Field Sampling Activities

The overall monitoring and sampling program was implemented by GeoSyntec with sampling performed by Joyce Engineering (Joyce) and WMI site personnel.

4.2.1 Leachate Quality

Leachate samples from the test and control areas were obtained by Joyce on the dates presented in Table 2. The leachate samples were collected from sumps in Cells 1, 2, 3, 4, as well as the leachate storage tank. The leachate samples were collected using the field sampling procedures described in the Monitoring Plan contained in the permit application for leachate recirculation at the site [GeoSyntec, 2001].

4.2.2 Landfill Gas Quality

The landfill gas samples were collected using the procedures described in the Monitoring Plan contained in the permit application for leachate recirculation at the site [GeoSyntec, 2001]. The landfill gas composition in the wellheads in the test and control areas were tested for the percentages of oxygen, carbon dioxide, methane, flow rate, and temperature. The landfill gas composition at the wellheads is summarized in Table 4.

4.2.3 Solid Waste Sampling

Prior to construction of the leachate recirculation system, a series of exploratory borings were drilled in both the test and control areas. Samples of solid waste were collected from a variety of depths at each boring location. No solid waste samples were obtained during this reporting period. The results from the initial background samples are discussed in Section 5.3.

4.3 Laboratory Analysis Program

4.3.1 Leachate Quality

Leachate samples were analyzed by Severn Trent Laboratories, Inc. and were tested for the parameters listed in Table 3. A summary of the key parameters identified in Section 4.1 are presented in Table 5. Also included in Table 5 are the parameters listed in the Federal Register site-specific rule (i.e., wet chemistry parameters, heavy metals, and common ions). The test results for the organic priority pollutants are not anticipated to indicate the overall performance of the test area and are not presented in Table 5 at this time. Section 5.1 of this report provides an analysis of the leachate quality data.

4.3.2 Landfill Gas Quality

The landfill gas samples from the header pipes in the landfill gas collection system were sent to Triangle Environmental Services for laboratory analysis. These landfill

gas samples were tested in accordance with USEPA method TO-14. Copies of these results are presented in Appendix D.

4.3.3 Solid Waste Composition

The solid waste samples collected during the field activities were sent to Virginia Tech and were analyzed for moisture content, lignin, cellulose, pH, and biochemical methane potential.

4.4 Other Data

4.4.1 Leachate Generation Quantities

Leachate flow was measured bi-weekly in Cells 1, 2, 3, and 4 by site personnel using flowmeters that are installed in the leachate riser vaults near each cell. The leachate generation quantities for each cell are presented in Table 6.

4.4.2 Quantity of Liquid Applied to Landfill

The amount of liquid added to each trench was recorded by site personnel. The current trench configuration is shown in Figure 1. In general, liquid was added to each trench approximately every three days. A summary of the liquid added to the test area is presented in Table 7.

4.4.3 Landfill Settlement

A series of topographic surveys of the test and control areas has been performed by Flora Surveying. An approximately 100-ft grid system was established, with the elevation measured at the same locations over time. A summary table containing the point identification number, northing, easting, and elevations at the initial survey date is presented in Table 8. The survey grid is shown on Drawing 2.

5. DATA ANALYSIS

5.1 Leachate Quality and Quantity

Liquid application at the King George Landfill began on 1 November 2002. During the reporting period, leachate was added to the test area. Figure 2 shows the liquid added to the test area, and the target rate of 7 million to 8 million gallons per year (583,333 to 666,666 gallons per month). The average daily application rate is approximately 11,418 gallons per day. Between 1 January 2003 and 30 June 2003 the total amount of leachate applied to the landfill was 1,631,185 gallons. To date, a total of 2,763,237 gallons of leachate have been recirculated at King George. It should be noted that that weather events during the reporting period made recirculation operations difficult. Through 30 June 2003, the site is approximately 8.5 inches ahead of its normal annual precipitation. Table 9 shows the average monthly precipitation, 2003 monthly precipitation (through 30 June 2003), and the departure from normal.

The amount of leachate collected in the test and control areas during the operation of the liquid application system between 1 January 2003 and 30 June 2003 was 496,600 and 562,100 gallons, respectively. Since November 2002, the total amount of leachate collected in the test and control areas was 630,400 and 921,400 gallons, respectively. The total amount of leachate sent off-site for disposal during the reporting period was approximately 1,978,000 gallons. Figure 2 also shows the leachate collection quantities for the test and control areas.

In examining Figure 2, there does not appear to be a correlation between the liquid applied to the landfill and the leachate collected in the leachate collection system. This indicates that at this time, the waste in the test area has not yet reached its absorptive capacity.

Because the program is still in its initial stages, there is not enough data to identify trends in the leachate quality results. However, in reviewing the key leachate parameters in Table 5, several items are apparent. The analyses of the background leachate quality samples (dated September 27, 2002) are within typical ranges for landfill leachate. The monthly leachate samples continue to indicate values of biological oxygen demand (BOD) value the lower range of typical landfill leachate. Table 5 shows a range between approximately 50 mg/l and 3,300 mg/l; typical values range from 20 mg/l to 35,000 mg/l [Kjeldsen et al., 2002].

Figures 3 through 8 show variation with time in the BOD to COD ratio, COD to TOC ratio chloride, nitrate nitrogen, ammonia nitrogen, and pH, respectively. These figures represent the key leachate parameters identified in Table 5. Because of the limited amount of data collected so far, trends in the data cannot be identified.

Additional data related to the leachate quality test results is presented in Appendix A. The tables in Appendix A summarize the leachate parameters that exceed the MCL or were at detectable levels.

5.2 Landfill Gas Quality and Quantity

Table 4 summarizes the landfill gas composition and temperature measured at the wellheads. The wellheads are identified as being located in the test or control areas. The temperatures measured at the wellheads are within normal ranges; this indicates that there are no landfill fires within the test or control areas.

The trends in the landfill gas quantity for the gas wells in the test and control areas are shown in Figure 9. None of the gas wells presented in Figure 9 show consistent behavior at this time.

Figure 10 shows the percentage methane in the landfill gas at the wells in the test and control areas. The percentage of methane present in the landfill gas appears to have remained relatively constant over the first year of operation at the site, with the exception of GW-6. At this time, there does not appear to be a clear difference between the percentage methane present in the landfill gas in the test or control areas.

Figure 11 shows the percentage carbon dioxide in the landfill gas at the wells in the test and control areas. With the exception of Well GW-6, the percentage carbon dioxide present in the landfill gas wells has remained relatively constant. At this time, there does not appear to be a clear difference between the percentage carbon dioxide present in the landfill gas in the test and control areas.

5.3 Solid Waste

Table 10 summarizes the baseline solid waste sampling results from the field work conducted in the summer of 2001. These results appear to be fairly typical for MSW.

Future comparisons will be made as subsequent solid waste samples are obtained from the test and control areas. It is anticipated that additional solid waste samples will be obtained in late summer 2003.

6. CONCLUSIONS

This report has provided a summary of the monitoring activities at the King George Landfill as part of the leachate recirculation operations conducted under the USEPA's XL Program. Because the program is only in its initial stages, conclusions regarding the performance of the test area at the King George Landfill cannot be provided at this time. However, based on the experience gained during the design, permitting, construction processes, and initial start up of the program, the following comments are offered.

- Operational conditions (i.e., weather, site access, etc.) may make leachate recirculation without a pump system difficult. For example, during periods of wet weather, leachate haul trucks may not be able to safely drive around the site.
- The trench systems designed for the site appear to be working well after one year of operation. The operators have not noted excessive problems related to drainage of the trenches.
- Using the operational techniques identified in the Project XL program for King George, the anticipated benefits (i.e., settlement, improved leachate quality, and improved landfill gas quality) require more than one year to be realized.
- Based on the information obtained to date, it has been observed that leachate recirculation has been performed without detrimental impacts (i.e., excessive odors, slope stability problems, etc.).

A summary of the 2003 monitoring events planned for the remainder of the year is presented in Table 1.

7. REFERENCES

GeoSyntec Consultants, 2000, "*Project XL – Final Project Agreement for Landfill Bioreactor Systems – King George County Landfill and Recycling Center and King George Recycling and Waste Disposal Facility*", dated 28 September 2000.

GeoSyntec Consultants, 2001, "*Landfill Bioreactor Project Application for Permit Amendment for Experimental Permit*," King George Recycling and Waste Disposal Facility, dated 19 September 2001.

Kjeldsen, P., Barlaz, M.P., Rooker, A.P., Baun, A., Ledin, A., and Christensen, T.H., 2002, "*Present and Long-Term Composition of MSW Landfill Leachate: A Review*", Critical Reviews in Environmental Science and Technology, 32 (4), p. 297-336.

Pohland, F.G., and Harper, S.R., 1986, "*Critical Review and Summary of Leachate and Gas Production From Landfills*", EPA/600/2-86/073, U.S. Environmental Protection Agency, Cincinnati, Ohio.

Title 40, Code of Federal Regulations, Part 60.

TABLE 1
2003 MONITORING ACTIVITIES
Project XL
King George County Landfill and Recycling Center
King George County, Virginia

	Monitoring Parameters	Responsible Party	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1. LEACHATE	Chemical parameters measured on site	WM personnel	X	X	X	X			X			X		
	Physical parameters measured on site	WM personnel	X	X	X	X	X	X	X	X	X	X	X	X
	Chemical parameters sampled on site from test area	Sampled by subcontractor, tested offsite by Geochemical	X	X	X	X			X			X		
	Chemical parameters sampled on site from storage tanks	Sampled by subcontractor, tested offsite by Geochemical	X	X	X	X			X			X		
2. LANDFILL GAS	Landfill gas composition measured on site	WM personnel	X	X	X	X	X	X	X	X	X	X	X	X
	Physical parameters measured on site	WM personnel	X	X	X	X	X	X	X	X	X	X	X	X
	Chemical parameters	WM personnel, testing by subcontractor	X	X	X	X			X			X		
	Surface landfill gas measured on site	Subcontractor	X	X	X	X			X			X		
3. SOLID WASTE	Survey, on site	Subcontractor		X		X		X		X		X		X
	Solid waste stabilization and decomposition measured on site	WM personnel										X		

TABLE 2
SUMMARY OF SAMPLING ACTIVITIES
Project XL
King George County Landfill and Recycling Center
King George, Virginia

Date	Sampling Event
9/27/2002	Background leachate sampling
9/30/2002	Background landfill gas sampling
10/9/2002	Background landfill gas sampling
10/28/2002	Background leachate sampling
11/11/2002	Topographical site survey
11/14/2002	Monthly landfill gas sampling
11/25/2003	Monthly leachate sampling
12/18/2002	Monthly landfill gas sampling
12/19/2002	Monthly leachate sampling
1/23/2003	Monthly landfill gas sampling
1/27/2003	Monthly landfill gas sampling (composite samples)
1/27/2003	Monthly leachate sampling
1/29/2003	Monthly landfill gas sampling (surface emission scan)
2/24/2003	Monthly leachate sampling
2/24/2003	Monthly landfill gas sampling (composite samples)
2/25/2003	Monthly landfill gas sampling
3/19/2003	Monthly landfill gas sampling (surface emission scan)
3/24/2003	Monthly leachate sampling
3/24/2003	Monthly landfill gas sampling (composite samples)
3/25/2003	Monthly landfill gas sampling
4/16/2003	Monthly leachate sampling
4/16/2003	Monthly landfill gas sampling
4/16/2003	Monthly landfill gas sampling (composite samples)
6/13/2003	Monthly landfill gas sampling

TABLE 3
LEACHATE ANALYSIS PARAMETERS
Project XL
King George County Landfill
King George County, Virginia

Parameter	Method	Parameter	Method
Cadmium	EPA 200.7	Bromochloromethane	EPA 8260B
Potassium	EPA 200.7	Bromomethane	EPA 8260B
Chloride	EPA 325.2	Carbon Disulfide	EPA 8260B
Ammonia Nitrogen	EPA 350.1	Carbon Tetrachloride	EPA 8260B
Total Kjeldahl Nitrogen	EPA 351.3	Chlorobenzene	EPA 8260B
Nitrate Nitrogen	EPA 353.2	Chlorodibromomethane	EPA 8260B
Phosphorus, ortho	EPA 365.2	Chloroethane	EPA 8260B
Phosphorus, total	EPA 365.2	Chloromethane	EPA 8260B
Sulfate	EPA 375.4	cis-1,2-Dichloroethene	EPA 8260B
Arsenic	EPA 6010 B	cis-1,3-Dichloropropene	EPA 8260B
Barium	EPA 6010 B	Dibromomethane	EPA 8260B
Chromium	EPA 6010 B	Dichlorobromomethane	EPA 8260B
Lead	EPA 6010 B	Dichlorodifluoromethane	EPA 8260B
Selenium	EPA 6010 B	Ethyl Methacrylate	EPA 8260B
Silver	EPA 6010 B	Ethylbenzene	EPA 8260B
Mercury	EPA 7470	Iodomethane	EPA 8260B
1,2-Dibromo-3-chloropropane	EPA 8011	Methacrylonitrile	EPA 8260B
1,2-Dibromoethane	EPA 8011	Methyl Ethyl Ketone	EPA 8260B
1,1,1,2-Tetrachloroethane	EPA 8260B	Methyl methacrylate	EPA 8260B
1,1,1-Trichloroethane	EPA 8260B	Methylene Chloride	EPA 8260B
1,1,2,2-Tetrachloroethane	EPA 8260B	Propionitrile	EPA 8260B
1,1,2-Trichloroethane	EPA 8260B	Styrene	EPA 8260B
1,1-Dichloroethane	EPA 8260B	Tetrachloroethene	EPA 8260B
1,1-Dichloroethene	EPA 8260B	Toluene	EPA 8260B
1,1-Dichloropropene	EPA 8260B	Total Xylene	EPA 8260B
1,2,3-Trichloropropane	EPA 8260B	trans-1,2-Dichloroethene	EPA 8260B
1,2-Dichlorobenzene	EPA 8260B	trans-1,3-Dichloropropene	EPA 8260B
1,2-Dichloroethane	EPA 8260B	trans-1,4-Dichloro-2-butene	EPA 8260B
1,2-Dichloropropane	EPA 8260B	Tribromomethane	EPA 8260B
1,3-Dichlorobenzene	EPA 8260B	Trichloroethene	EPA 8260B
1,3-Dichloropropane	EPA 8260B	Trichlorofluoromethane	EPA 8260B
1,4-Dichlorobenzene	EPA 8260B	Trichloromethane	EPA 8260B
2,2-Dichloropropane	EPA 8260B	Vinyl Acetate	EPA 8260B
2-chloro-1,3-butadiene	EPA 8260B	Vinyl Chloride	EPA 8260B
2-Hexanone	EPA 8260B	1,2,4,5-Tetrachlorobenzene	EPA 8270C
2-Methyl-1-propanol	EPA 8260B	1,2,4-Trichlorobenzene	EPA 8270C
3-Chloro-1-Propene	EPA 8260B	1,3-Dinitrobenzene	EPA 8270C
4-Methyl-2-Pentanone	EPA 8260B	1,4-Naphthoquinone	EPA 8270C
Acetone	EPA 8260B	1-Naphthylamine	EPA 8270C
Acetonitrile	EPA 8260B	1-Nitrosopiperidine	EPA 8270C
Acrolein	EPA 8260B	2,3,4,6-Tetrachlorophenol	EPA 8270C
Acrylonitrile	EPA 8260B	2,4,5-Trichlorophenol	EPA 8270C

TABLE 3 (continued)
LEACHATE ANALYSIS PARAMETERS

Parameter	Method	Parameter	Method
Benzene	EPA 8260B	2,4,6-Trichlorophenol	EPA 8270C
2,4-Dichlorophenol	EPA 8270C	Dibenzofuran	EPA 8270C
2,4-Dimethylphenol	EPA 8270C	Diethyl Phthalate	EPA 8270C
2,4-Dinitrophenol	EPA 8270C	Dimethoate	EPA 8270C
2,4-Dinitrotoluene	EPA 8270C	Dimethyl Phthalate	EPA 8270C
2,6-Dichlorophenol	EPA 8270C	Di-N-Butyl Phthalate	EPA 8270C
2,6-Dinitrotoluene	EPA 8270C	Di-N-Octylphthalate	EPA 8270C
2-Acetylaminofluorene	EPA 8270C	Di-n-propylnitrosamine	EPA 8270C
2-Chloro-Naphthalene	EPA 8270C	Diphenylamine	EPA 8270C
2-Chlorophenol	EPA 8270C	Disulfoton	EPA 8270C
2-Methyl-4,6-dinitrophenol	EPA 8270C	Ethyl Methanesulfonate	EPA 8270C
2-Methylnaphthalene	EPA 8270C	Famphur	EPA 8270C
2-Naphthylamine	EPA 8270C	Fluoranthene	EPA 8270C
2-Nitroaniline	EPA 8270C	Fluorene	EPA 8270C
2-Nitrophenol	EPA 8270C	Hexachlorobenzene	EPA 8270C
3,3-Dichlorobenzidine	EPA 8270C	Hexachlorobutadiene	EPA 8270C
3,3'-Dimethylbenzidine	EPA 8270C	Hexachlorocyclopentadiene	EPA 8270C
3-Methylcholanthrene	EPA 8270C	Hexachloroethane	EPA 8270C
3-Nitroaniline	EPA 8270C	Hexachloropropene	EPA 8270C
4-Aminobiphenyl	EPA 8270C	Indeno(1,2,3-cd)pyrene	EPA 8270C
4-Bromophenylphenylether	EPA 8270C	Isodrin	EPA 8270C
4-Chloro-3-methylphenol	EPA 8270C	Isophorone	EPA 8270C
4-Chloroaniline	EPA 8270C	Isosafrole	EPA 8270C
4-Chlorophenylphenylether	EPA 8270C	m,p-Cresol	EPA 8270C
4-Nitroaniline	EPA 8270C	Methapyrilene	EPA 8270C
4-Nitrophenol	EPA 8270C	Methyl Methanesulfonate	EPA 8270C
5-Nitro-o-toluidine	EPA 8270C	Methyl Parathion	EPA 8270C
7,12Dimethylbenz(a)-anthracene	EPA 8270C	Naphthalene	EPA 8270C
Acenaphthene	EPA 8270C	Nitrobenzene	EPA 8270C
Acenaphthylene	EPA 8270C	N-Nitrosodibutylamine	EPA 8270C
Acetophenone	EPA 8270C	N-Nitrosodiethylamine	EPA 8270C
Anthracene	EPA 8270C	n-Nitrosodimethylamine	EPA 8270C
Benzo(a)anthracene	EPA 8270C	n-Nitrosodiphenylamine	EPA 8270C
Benzo(a)pyrene	EPA 8270C	N-Nitrosomethylethylamine	EPA 8270C
Benzo(b)fluoranthene	EPA 8270C	N-Nitrosopyrrolidine	EPA 8270C
Benzo(ghi)perylene	EPA 8270C	o,o,o-Triethylphosphothioate	EPA 8270C
Benzo(k)fluoranthene	EPA 8270C	o-Cresol	EPA 8270C
Benzyl Alcohol	EPA 8270C	o-Toluidine	EPA 8270C
bis(2-Chloroethoxy)methane	EPA 8270C	Parathion	EPA 8270C
bis(2-Chloroethyl)ether	EPA 8270C	p-Dimethylaminoazobenzene	EPA 8270C
bis(2-Chloroisopropyl)ether	EPA 8270C	Pentachlorobenzene	EPA 8270C
bis(2-Ethylhexyl)phthalate	EPA 8270C	Pentachloronitrobenzene	EPA 8270C
Butyl benzylphthalate	EPA 8270C	Phenacetin	EPA 8270C
Chlorobenzilate	EPA 8270C	Phenanthrene	EPA 8270C
Chrysene	EPA 8270C	Phenol	EPA 8270C

TABLE 3 (continued)
LEACHATE ANALYSIS PARAMETERS

Parameter	Method	Parameter	Method
Diallate	EPA 8270C	Phorate	EPA 8270C
Dibenzo(a,h)anthracene	EPA 8270C	p-Phenylenediamine	EPA 8270C
Pronamide	EPA 8270C	Endrin Aldehyde	EPA 8081
Pyrene	EPA 8270C	Gamma BHC (Lindane)	EPA 8081
Saffrole	EPA 8270C	Heptachlor	EPA 8081
sym-Trinitrobenzene	EPA 8270C	Heptachlor epoxide	EPA 8081
Thionazin	EPA 8270C	Methoxychlor	EPA 8081
Chemical Oxygen Demand	HACH 8000	Toxaphene	EPA 8081
Total dissolved solids	SM 2540C	2,4,5-T	EPA 8151A
Nitrite Nitrogen	SM 4500-NO2B	2,4-D	EPA 8151A
BOD 5-day	SM 5210B	Dinoseb	EPA 8151A
Total Organic Carbon	SM 5310C	Pentachlorophenol	EPA 8151A
Aldrin	EPA 8081	Silvex	EPA 8151A
Alpha BHC	EPA 8081	Pyruvic	
Beta BHC	EPA 8081	Lactic	
Chlordane	EPA 8081	Formic	
DDD	EPA 8081	Acetic	
DDE	EPA 8081	Propionic	
DDT	EPA 8081	Butyric	
Delta BHC	EPA 8081		
Dieldrin	EPA 8081		
Endosulfan I	EPA 8081		
Endosulfan II	EPA 8081		
Endosulfan Sulfate	EPA 8081		
Endrin	EPA 8081		

Note

This list of parameters was developed from the Monitoring, Sampling, and Analysis Report included in the permit amendment submitted in October 2001.

TABLE 4
LANDFILL GAS DATA
Project XL
King George County Landfill and Recycling Center
King George, Virginia

FLARE

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	---	---	---	---	---	---	---	62	76	89
Flow Rate (scfm)	---	1980	1882	683	1524	2528	1326	1243	1404	636
Methane (%)	---	48.6	46	47.3	34.9	47	44.2	39.6	39.5	55.7
Carbon Dioxide (%)	---	37.3	33.5	35.5	21.6	35	35.1	32.4	30.8	40.2
Oxygen (%)	---	2	4	3.4	9.9	2.9	3.4	5.6	6.1	1.7
Balance (%)	---	12.1	16.5	13.8	33.6	15.1	17.3	22.4	23.6	2.4

LFG WELL GW-1 (CONTROL AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	114	116	116	115	114	115	117	117	118	118
Flow Rate (scfm)	---	---	20	20	22	17	24	24	4	11
Methane (%)	51.4	45.8	40.9	52	51.9	48.5	52.3	57	52.7	55.7
Carbon Dioxide (%)	32.8	35.7	31.1	39.9	36.6	37.2	39.9	39.7	40.6	43
Oxygen (%)	3.8	2.3	4.5	0.2	1.5	0.5	0.5	0.9	1.5	0.6
Balance (%)	12	16.2	23.5	7.9	10	13.8	7.3	2.4	5.2	0.7

LFG WELL GW-1A (CONTROL AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	124	112	115	113	---	---	73	---	---	---
Flow Rate (scfm)	---	---	---	---	---	---	---	---	---	---
Methane (%)	44.9	56.2	59.8	51	---	---	57.8	---	---	---
Carbon Dioxide (%)	30.5	40.7	40.7	36.2	---	---	42.2	---	---	---
Oxygen (%)	5.1	0	0	2.2	---	---	0	---	---	---
Balance (%)	19.5	3.1	0	10.6	---	---	0	---	---	---

LFG WELL GW-2 (CONTROL AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	108	112	112	115	114	116	117	117	119	120
Flow Rate (scfm)	---	---	37	28	---	55	47	40	7	20
Methane (%)	54	45	46.8	53	55.6	52.1	52.8	53	55.8	58
Carbon Dioxide (%)	34.7	36.2	34.2	39.9	34.7	39	40.6	40.2	42.7	42
Oxygen (%)	2.2	1.2	3.3	0.9	2.4	0.3	0.5	0.3	0.4	0
Balance (%)	9.1	17.6	15.7	6.2	7.3	8.6	6.1	6.5	1.1	0

GW-1A was destroyed during construction activities in January 2003
Access to gas wells was limited due to waste placement activities.

TABLE 4
LANDFILL GAS DATA
(continued)

LFG WELL GW-2A (CONTROL AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	112	112	112	109	---	---	---	---	---	---
Flow Rate (scfm)	---	---	---	---	---	---	---	---	---	---
Methane (%)	63.9	44.2	58.1	58.3	---	---	---	---	---	---
Carbon Dioxide (%)	34.8	33.7	41.9	40.5	---	---	---	---	---	---
Oxygen (%)	1.1	3.7	0	0.4	---	---	---	---	---	---
Balance (%)	0.2	18.4	0	0.8	---	---	---	---	---	---

LFG WELL GW-3 (TEST AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	97	92	80	85	79	74	81	77	82	88
Flow Rate (scfm)	---	---	---	1	---	---	---	---	---	---
Methane (%)	55.5	46.5	49.7	43.7	38.4	44.8	44.3	43.7	42	45.8
Carbon Dioxide (%)	38.5	36.1	38.9	31.8	25.2	33.9	33.9	33.2	33.5	34.9
Oxygen (%)	0.1	1.2	0.1	3.8	6.8	3.2	4.4	4.4	5.5	3.4
Balance (%)	5.9	16.2	11.3	20.7	29.6	18.1	17.4	18.7	19	15.9

LFG WELL GW-3A (TEST AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	120	118	112	118	---	---	---	---	---	---
Flow Rate (scfm)	---	---	---	---	---	---	---	---	---	---
Methane (%)	51.5	53.1	58.3	54	---	---	---	---	---	---
Carbon Dioxide (%)	33.3	38.9	41.1	42.9	---	---	---	---	---	---
Oxygen (%)	3.7	0	0	0	---	---	---	---	---	---
Balance (%)	11.5	8	0.6	3.1	---	---	---	---	---	---

LFG WELL GW-4 (TEST AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	97	102	97	90	66	87	98	91	97	100
Flow Rate (scfm)	---	---	---	---	---	---	---	---	---	---
Methane (%)	57.3	45.7	53.2	54.8	0.3	51.7	58	57.5	56.7	58
Carbon Dioxide (%)	35.5	35.4	39.1	39.5	3.5	37.8	41.7	41.6	43.3	42
Oxygen (%)	2.7	2.7	1.5	1.1	19.7	1.1	0.1	0	0	0
Balance (%)	4.5	16.2	6.2	4.6	76.5	9.4	0.2	0.9	0	0

GW-2A was destroyed during construction activities in March 2003

GW-3A was destroyed during construction activities in January 2003

Access to gas wells was limited due to waste placement activities.

TABLE 4
LANDFILL GAS DATA
(continued)

LFG WELL GW-5 (CONTROL AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	100	102	98	99	100	101	102	103	105	105
Flow Rate (scfm)	---	37	---	62	---	62	56	58	---	31
Methane (%)	67.1	52.9	59	58.2	38.8	53.5	55.7	52.4	55.6	54.4
Carbon Dioxide (%)	32.4	39.3	42.2	40.9	28.6	39.9	43.1	41.1	44.2	42.2
Oxygen (%)	0.3	0.4	0	0.4	6.7	0.1	0.7	0.7	0.2	0.1
Balance (%)	0.2	7.4	0	0.5	25.9	6.5	0.5	5.8	0	3.3

LFG WELL GW-6 (CONTROL AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	100	100	72	55	---	43	---	66	66	92
Flow Rate (scfm)	---	7	---	---	---	13	---	---	---	1
Methane (%)	38.8	46.1	49.4	57.8	---	26.9	---	3.1	24.1	45.3
Carbon Dioxide (%)	27.5	34.7	35.1	34.6	---	16	---	3.9	16.9	31.9
Oxygen (%)	6.6	2	3.7	0.4	---	11.6	---	18.8	11.9	3.2
Balance (%)	27.1	17.2	11.8	7.2	---	45.5	---	74.2	47.1	19.6

LFG WELL GW-7 (CONTROL AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	130	120	134	132	131	132	---	---	132	---
Flow Rate (scfm)	---	---	---	24	23	31	---	---	---	---
Methane (%)	74.9	49.4	52.1	51.5	50.9	50.1	---	---	54.4	---
Carbon Dioxide (%)	24.4	37.9	41	38.7	27.2	40.6	---	---	44.2	---
Oxygen (%)	0	0.6	0	1.3	1	0	---	---	0	---
Balance (%)	0.7	12.1	6.9	8.5	21	9	---	---	1	---

LFG WELL GW-8 (TEST AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	125	123	127	126	125	127	128	128	130	130
Flow Rate (scfm)	---	36	---	50	83	61	59	54	---	---
Methane (%)	64.4	43.6	53.4	51.3	40.6	53.6	54.7	53.6	58.7	55.1
Carbon Dioxide (%)	25.1	36.7	41.7	40.3	37.1	40.2	42.2	42	41.3	43.5
Oxygen (%)	0	0	0	0.8	5.3	0.1	0.2	0.6	0	0
Balance (%)	10.5	19.7	4.9	7.6	17	6.1	2.9	3.8	0	1.4

Access to gas wells was limited due to waste placement activities.

TABLE 4
LANDFILL GAS DATA
(continued)

LFG WELL GW-9 (TEST AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	116	121	117	119	118	117	117	116	119	119
Flow Rate (scfm)	---	---	56	36	---	43	37	34	17	14
Methane (%)	56.6	46.8	55.3	48.9	26	55.9	55.4	54.9	55.8	54.8
Carbon Dioxide (%)	36.6	37.9	40.4	36.6	19.2	34.5	40.9	41.2	39.9	41.9
Oxygen (%)	0	0	0	1.6	11	0.5	0.5	0.3	1.6	0.1
Balance (%)	6.8	15.3	4.3	12.9	43.8	9.1	3.2	3.6	2.7	3.2

LFG WELL GW-10 (CONTROL AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	94	94	92	91	---	89	89	87	88	89
Flow Rate (scfm)	---	9	---	54	58	---	44	40	21	22
Methane (%)	26.3	37.5	49.8	54.6	52.3	56.8	54.3	57.3	57	53.3
Carbon Dioxide (%)	19.8	31.6	40.5	39.9	31.8	40.1	43.6	41.7	42.8	40.7
Oxygen (%)	9.4	4.2	0	0	4.1	0	0.1	0	0.2	0
Balance (%)	44.5	26.7	9.7	5.5	11.8	3.1	2	1	0	6

LFG WELL GW-11 (CONTROL AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	110	108	109	111	112	---	---	---	---	---
Flow Rate (scfm)	---	---	---	54	---	---	---	---	---	---
Methane (%)	66.4	46.5	53.7	50.7	36	---	---	---	---	---
Carbon Dioxide (%)	33	36.6	42.1	39.5	24	---	---	---	---	---
Oxygen (%)	0	1.2	0	1.1	9	---	---	---	---	---
Balance (%)	0.6	15.7	4.2	8.7	31	---	---	---	---	---

LFG WELL GW-12 (TEST AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	128	122	124	127	---	72	76	---	---	---
Flow Rate (scfm)	---	32	---	21	---	51	44	---	---	---
Methane (%)	65.3	45.5	55.8	51.8	---	55	48.3	---	---	---
Carbon Dioxide (%)	33.1	35.1	2.9	36.9	---	37.5	48.8	---	---	---
Oxygen (%)	1.6	2.9	0	1.1	---	0	0	---	---	---
Balance (%)	0	16.5	1.9	10.2	---	7.5	2.9	---	---	---

Access to gas wells was limited due to waste placement activities.

TABLE 4
LANDFILL GAS DATA
(continued)

LFG WELL GW-13 (TEST AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	126	120	123	120	---	120	121	---	119	---
Flow Rate (scfm)	---	7	---	25	---	14	20	---	---	---
Methane (%)	72.2	48.8	54.8	49.9	---	52.7	54.6	---	54.7	---
Carbon Dioxide (%)	27.4	38.3	43.1	45.2	---	36	41.7	---	42.9	---
Oxygen (%)	0	0.9	0	0	---	0.5	0.1	---	0	---
Balance (%)	0.4	12	2.1	4.9	---	10.8	3.6	---	2.4	---

LFG WELL GW-14 (CONTROL AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	130	96	---	79	---	---	92	---	95	107
Flow Rate (scfm)	---	11	---	---	---	---	---	---	1	---
Methane (%)	42.2	52.8	---	55	---	---	51.1	---	52.1	46.1
Carbon Dioxide (%)	29	38.1	---	44.6	---	---	41.9	---	40.7	35.3
Oxygen (%)	5.6	1	---	0	---	---	0.6	---	1.4	3
Balance (%)	23.2	8.1	---	0.4	---	---	6.4	---	5.8	15.6

LFG WELL GW-15 (CONTROL AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	92	90	87	76	---	76	82	83	82	89
Flow Rate (scfm)	---	8	---	14	---	12	---	38	19	---
Methane (%)	66.5	47.9	50.7	37.8	---	57	55	54	39	50
Carbon Dioxide (%)	33.5	38.3	41.2	31.4	---	41	44	42	32	41
Oxygen (%)	0	1.3	0.9	5.5	---	0	0	0	6	1
Balance (%)	0	12.5	7.2	25.3	---	2	1	4	24	8

LFG WELL GW-16 (CONTROL AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	120	116	118	117	117	---	100	91	120	120
Flow Rate (scfm)	---	---	---	59	64	---	---	---	21	24
Methane (%)	45.1	46.3	55	52.4	40	---	59	61	56	54
Carbon Dioxide (%)	28.6	38	43.5	39	30	---	40	39	44	42
Oxygen (%)	5.3	0.8	0	1.8	7	---	0	0	0	0
Balance (%)	21	14.9	1.5	6.8	24	---	2	0	0	4

Access to gas wells was limited due to waste placement activities.

TABLE 4
LANDFILL GAS DATA
(continued)

LFG WELL GW-17 (TEST AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	128	126	133	133	---	---	112	---	79	81
Flow Rate (scfm)	---	12	---	10	---	---	8	---	30	31
Methane (%)	58.9	47	56.9	51.7	---	---	51	---	49	50
Carbon Dioxide (%)	36.5	36.2	42.6	38	---	---	38	---	49	48
Oxygen (%)	1.5	2.2	0	2	---	---	3	---	1	0
Balance (%)	3.1	14.6	0.5	8.3	---	---	9	---	2	3

LFG WELL GW-18 (TEST AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	140	140	138	---	---	---	---	---	---	---
Flow Rate (scfm)	---	7	---	---	---	---	---	---	---	---
Methane (%)	46	53.2	60.8	---	---	---	---	---	---	---
Carbon Dioxide (%)	28.8	37.4	39.3	---	---	---	---	---	---	---
Oxygen (%)	6.6	0.9	0	---	---	---	---	---	---	---
Balance (%)	18.6	8.5	0	---	---	---	---	---	---	---

LFG WELL GW-19 (CONTROL AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	112	112	---	101	---	---	---	---	---	---
Flow Rate (scfm)	---	---	---	---	---	---	---	---	---	---
Methane (%)	65.1	59.6	---	58.9	---	---	---	---	---	---
Carbon Dioxide (%)	34.7	36.6	---	39.7	---	---	---	---	---	---
Oxygen (%)	0	0	---	0	---	---	---	---	---	---
Balance (%)	0.2	3.8	---	1.4	---	---	---	---	---	---

LFG WELL GW-20 (CONTROL AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	94	92	91	92	90	87	93	91	92	96
Flow Rate (scfm)	---	---	---	28	38	14	14	3	2	5
Methane (%)	54.9	51.9	51.9	55.9	57	58	55	56	54	51
Carbon Dioxide (%)	36.4	41.4	41.9	43.1	34	42	45	43	44	43
Oxygen (%)	2.5	0.4	0.3	0.3	5	0	0	0	1	0
Balance (%)	6.2	6.3	5.9	0.7	5	0	1	1	1	6

GW-2A was destroyed during construction activities in December 2002 and was rebuilt in June 2003.
Access to gas wells was limited due to waste placement activities.

TABLE 4
LANDFILL GAS DATA
(continued)

LFG WELL GW-21 (CONTROL AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	140	140	141	141	---	---	---	---	---	---
Flow Rate (scfm)	---	33	---	33	---	---	---	---	---	---
Methane (%)	66.3	52.4	56.5	51	---	---	51	---	---	---
Carbon Dioxide (%)	33.5	41	42.2	36.6	---	---	48	---	---	---
Oxygen (%)	0	0.1	0	2	---	---	0	---	---	---
Balance (%)	0.2	6.5	1.3	10.4	---	---	2	---	---	---

LFG WELL GW-22 (TEST AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	138	133	135	139	---	---	73	---	131	136
Flow Rate (scfm)	---	11	18	47	---	---	66	---	7	---
Methane (%)	69.4	44.9	58.7	53.5	---	---	55	---	57	55
Carbon Dioxide (%)	29.7	30.8	40.2	42.6	---	---	41	---	43	42
Oxygen (%)	0.9	3.7	0	0	---	---	0	---	0	0
Balance (%)	0	20.6	1.1	3.9	---	---	4	---	0	4

LFG WELL GW-23 (CONTROL AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	---	120	125	126	---	---	---	---	---	---
Flow Rate (scfm)	---	---	---	---	---	---	---	---	---	---
Methane (%)	---	53	59.3	55.5	---	---	---	---	---	---
Carbon Dioxide (%)	---	36.2	40.2	43.2	---	---	---	---	---	---
Oxygen (%)	---	1.3	0	0	---	---	---	---	---	---
Balance (%)	---	9.5	0.5	1.3	---	---	---	---	---	---

LFG WELL GW-24 (CONTROL AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	108	102	100	103	100	97	101	99	100	103
Flow Rate (scfm)	---	6	---	21	25	14	11	17	5	5
Methane (%)	35.1	32.3	52	52.9	49	64	54	52	56	53
Carbon Dioxide (%)	25.4	29.8	42.3	42	36	33	42	39	44	43
Oxygen (%)	7.3	6.3	0	0.1	3	1	0	1	0	0
Balance (%)	32.2	31.6	5.7	5	12	3	4	6	0	4

Access to gas wells was limited due to waste placement activities.

TABLE 4
LANDFILL GAS DATA
(continued)

LFG WELL GW-25 (CONTROL AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	120	122	121	122	122	121	---	121	103	91
Flow Rate (scfm)	---	36	---	27	---	37	---	27	---	---
Methane (%)	19.1	34.2	55.3	51.3	20	63	---	52	57	57
Carbon Dioxide (%)	12.8	28.6	43.9	39.4	7	31	---	43	43	42
Oxygen (%)	13.1	5.7	0	1.6	16	1	---	0	0	0
Balance (%)	55	31.5	0.8	7.7	57	5	---	6	0	2

LFG WELL GW-26 (TEST AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	139	142	144	146	---	78	---	---	102	102
Flow Rate (scfm)	---	24	---	22	---	7	---	---	---	---
Methane (%)	69.5	51.4	56.9	51.3	---	56	---	---	39	47
Carbon Dioxide (%)	0.1	39.7	41.4	37.8	---	40	---	---	49	50
Oxygen (%)	0.3	0.3	0	1.8	---	0	---	---	1	0
Balance (%)	30.1	8.6	1.7	9.1	---	4	---	---	11	3

LFG WELL GW-27 (TEST AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	131	131	134	129	---	128	---	127	130	129
Flow Rate (scfm)	---	32	---	51	---	---	---	39	10	---
Methane (%)	47.4	42.9	59.9	54.3	---	58	---	41	59	56
Carbon Dioxide (%)	29.9	32.9	38.5	43.5	---	38	---	46	39	42
Oxygen (%)	5.7	4	0	0	---	0	---	2	0	0
Balance (%)	17	20.2	1.6	2.2	---	1	---	12	2	2

LFG WELL GW-28 (CONTROL AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	130	130	131	134	133	134	134	133	136	135
Flow Rate (scfm)	---	38	---	32	31	42	35	27	12	16
Methane (%)	69.2	52.8	57	49.1	58	52	57	54	55	50
Carbon Dioxide (%)	29.2	39.1	41.9	36	27	35	41	40	42	37
Oxygen (%)	0.2	0.4	0	2.4	8	2	1	1	0	1
Balance (%)	1.4	7.7	1.1	12.5	7	11	1	5	3	12

Access to gas wells was limited due to waste placement activities.

TABLE 4
LANDFILL GAS DATA
(continued)

LFG WELL GW-29 (CONTROL AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	135	137	138	137	137	136	134	134	131	128
Flow Rate (scfm)	---	41	---	34	27	48	40	36	---	---
Methane (%)	65.7	53.2	60.1	57	32	68	58	60	63	57
Carbon Dioxide (%)	34.3	38.2	40.1	37.5	14	28	40	40	37	41
Oxygen (%)	0	0.5	0	1.4	11	1	1	0	0	0
Balance (%)	0	8.1	0	4.1	43	2	2	0	0	2

LFG WELL GW-30 (TEST AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	136	131	130	131	---	132	---	112	132	133
Flow Rate (scfm)	---	---	---	---	---	16	---	20	---	2
Methane (%)	79.4	51.8	57.3	53.4	---	61	---	16	57	49
Carbon Dioxide (%)	20.4	38.1	40.4	37.6	---	31	---	49	40	35
Oxygen (%)	0	0.9	0	1.3	---	1	---	4	1	2
Balance (%)	0.2	9.2	2.3	7.7	---	7	---	31	2	14

LFG WELL GW-31 (CONTROL AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	132	131	135	134	132	131	131	129	131	132
Flow Rate (scfm)	---	32	---	41	---	45	37	33	18	21
Methane (%)	66.8	49.9	54.9	51.8	45	65	54	56	55	53
Carbon Dioxide (%)	32.8	37.2	41.7	37.9	23	35	42	41	42	40
Oxygen (%)	0.2	1.5	0	1.2	9	0	1	0	0	0
Balance (%)	0.2	11.4	3.4	9.1	23	0	4	3	2	7

LFG WELL GW-32 (TEST AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	129	126	131	131	---	130	131	131	132	132
Flow Rate (scfm)	---	27	---	39	---	52	49	39	19	54
Methane (%)	70.9	50.5	57.3	55.8	43	55	54	56	56	53
Carbon Dioxide (%)	28	37.9	40.2	37.6	12	37	42	41	41	39
Oxygen (%)	0	0.8	0	1	9	0	0	0	0	0
Balance (%)	1.1	10.8	2.5	5.6	37	8	4	3	2	8

Access to gas wells was limited due to waste placement activities.

TABLE 4
LANDFILL GAS DATA
(continued)

LFG WELL GW-33 (CONTROL AREA)

Parameter	30-Sep-02	9-Oct-02	14-Nov-02	18-Dec-02	27-Jan-03	25-Feb-03	25-Mar-03	17-Apr-03	29-May-03	13-Jun-03
Temperature (degrees F)	---	120	126	130	129	128	129	129	130	130
Flow Rate (scfm)	---	43	---	51	62	61	51	44	20	21
Methane (%)	---	44.3	60.1	55.4	53	62	59	58	57	55
Carbon Dioxide (%)	---	30.8	39	37.1	31	35	41	40	41	40
Oxygen (%)	---	3.9	0	1.1	4	1	0	0	1	0
Balance (%)	---	21	0.9	6.4	13	3	0	1	2	5

Access to gas wells was limited due to waste placement activities.

TABLE 5
EXAMPLE OF LEACHATE QUALITY DATA
Project XL
King George County Landfill and Recycling Center
King George, Virginia

CELL 1 (CONTROL AREA)

Parameter	Units	27-Sep-02	28-Oct-02	25-Nov-02	19-Dec-02	27-Jan-03	24-Feb-03	24-Mar-03	16-Apr-03
Biological Oxygen Demand	mg/l	103	30	74.7	346	58	1,800	77	52
Chemical Oxygen Demand	mg/l	732	508	778	981	854	5,330	1,350	616
Total Organic Carbon	mg/l	193	88	254	279	260	1,500	175	190
BOD/COD Ratio	-	0.14	0.06	0.10	0.35	0.07	0.34	0.06	0.08
COD/TOC Ratio	-	3.79	5.79	3.06	3.52	3.28	3.55	7.71	3.24
Chloride	mg/l	1380	915	1370	1130	1,760	618	801	1,340
Sulfate	mg/l	47.3	162	23.5	<5	5.00	50.60	9.40	2.00
Nitrate Nitrogen	mg/l as N	<0.05	<0.050	<0.05	<0.05	2.30	0.05	0.05	0.05
Ammonia Nitrogen	mg/l as N	0.82	509	1140	539	800	301	418	530
pH	-	7.23	7.02	7.3	7.2	7.10	6.79	7.15	7.22

Secondary Parameters	Units	27-Sep-02	28-Oct-02	25-Nov-02	19-Dec-02	27-Jan-03	24-Feb-03	24-Mar-03	16-Apr-03
Arsenic	mg/l	0.037	0.031	0.034	0.036	0.04	0.03	0.03	0.03
Barium	mg/l	0.57	0.49	0.52	0.46	0.47	0.52	0.26	0.28
Cadmium	mg/l	<0.001	<0.001	<0.001	<0.001	0.00	0.00	0.00	0.00
Chromium	mg/l	0.023	0.017	0.046	0.034	0.05	0.03	0.03	0.04
Lead	mg/l	<0.005	<0.005	<0.005	<0.005	0.01	0.01	0.01	0.01
Mercury	mg/l	<0.0004	<0.0004	<0.0004	<0.0004	0.00	0.00	0.00	0.00
Nitrite Nitrogen	mg/L	<0.05	<0.05	<0.05	<0.05	0.05	0.13	0.05	0.05
Total Kjeldahl Nitrogen	mg/L	<0.10	293	226	413	772	214	300	390
Ortho Phosphorus	mg/L	0.59	0.54	0.36	0.48	0.86	0.09	0.55	0.86
Potassium	mg/l	383	235	362	308	470	178	258	356
Selenium	mg/l	<0.01	0.01	<0.01	0.014	0.01	0.01	0.01	0.01
Silver	mg/l	<0.05	<0.05	<0.05	<0.05	0.05	0.05	0.05	0.05
Total Dissolved Solids	mg/L	3880	2570	3910	3780	4,560	4,610	3,040	3,580
Total Phosphorus	mg/L	0.87	0.76	1.6	<0.4	0.65	0.68	1.20	1.50

TABLE 5
EXAMPLE OF LEACHATE QUALITY DATA
(continued)

CELL 2 (CONTROL AREA)

Parameter		27-Sep-02	28-Oct-02	25-Nov-02	19-Dec-02	27-Jan-03	24-Feb-03	24-Mar-03	16-Apr-03
Biological Oxygen Demand	mg/l	357	462	378	396	1,210	1,600	263	81
Chemical Oxygen Demand	mg/l	1,960	2,050	1,700	1,290	2,480	3,060	1,400	912
Total Organic Carbon	mg/l	311	511	396	408	610	822	391	233
BOD/COD Ratio	-	0.18	0.23	0.22	0.31	0.49	0.52	0.19	0.09
COD/TOC Ratio	-	6.30	4.01	4.29	3.16	4.07	3.72	3.58	3.91
Chloride	mg/l	1970	1,630	1,680	1240	2,290	900	977	1,220
Sulfate	mg/l	<10	89	<5	<10	5.00	60	5.00	5.00
Nitrate Nitrogen	mg/l as N	0.19	0.13	<0.05	0.16	0.05	0.15	0.05	0.05
Ammonia Nitrogen	mg/l as N	1700	1120	1790	1390	1,040	563	771	842
pH	-	6.86	7.44	7.4	7.17	6.83	7.13	7.20	7.09

Secondary Parameters	Units	27-Sep-02	28-Oct-02	25-Nov-02	19-Dec-02	27-Jan-03	24-Feb-03	24-Mar-03	16-Apr-03
Arsenic	mg/l	0.038	0.035	0.028	0.02	0.03	0.02	0.02	0.02
Barium	mg/l	0.11	0.1	0.22	0.14	0.21	0.14	0.20	0.13
Cadmium	mg/l	<0.001	<0.001	<0.001	<0.001	0.00	0.00	0.00	0.00
Chromium	mg/l	0.099	0.076	0.065	0.048	0.08	0.03	0.04	0.04
Lead	mg/l	<0.005	<0.005	<0.005	<0.005	0.01	0.01	0.01	0.01
Mercury	mg/l	<0.0004	<0.0004	<0.0004	<0.0004	0.00	0.00	0.00	0.00
Nitrite Nitrogen	mg/L	0.19	0.15	0.17	<0.05	0.07	0.05	0.05	0.05
Total Kjeldahl Nitrogen	mg/L	<0.10	965	625	808	897	664	550	548
Ortho Phosphorus	mg/L	1	0.39	0.4	0.53	0.72	0.52	0.68	0.87
Potassium	mg/l	848	617	557	452	750	319	380	430
Selenium	mg/l	<0.01	<0.01	<0.01	<0.01	0.01	0.01	0.01	0.01
Silver	mg/l	<0.05	<0.05	<0.05	<0.05	0.05	0.05	0.05	0.05
Total Dissolved Solids	mg/L	7230	6600	5900	5190	6,590	4,020	4,120	4,390
Total Phosphorus	mg/L	1.8	0.58	1	0.75	0.78	1.40	2.00	2.10

TABLE 5
EXAMPLE OF LEACHATE QUALITY DATA
(continued)

CELL 3 (TEST AREA)

Parameter	Units	27-Sep-02	28-Oct-02	25-Nov-02	19-Dec-02	27-Jan-03	24-Feb-03	24-Mar-03	16-Apr-03
Biological Oxygen Demand	mg/l	157	226	65.7	1100	201	944	1,170	200
Chemical Oxygen Demand	mg/l	1,600	545	440	1,720	1,600	738	2,780	834
Total Organic Carbon	mg/l	527	132	137	506	594	737	762	259
BOD/COD Ratio	-	0.10	0.41	0.15	0.64	0.13	1.28	0.42	0.24
COD/TOC Ratio	-	3.04	4.13	3.21	3.40	2.69	1.00	3.65	3.22
Chloride	mg/l	1,690	84	660	318	2,360	828	817	999
Sulfate	mg/l	28	32	12.5	<10	5	53	2	41
Nitrate Nitrogen	mg/l as N	0.061	<0.05	<0.05	0.13	0.05	0.08	0.05	0.05
Ammonia Nitrogen	mg/l as N	3,120	15	866	730	1,220	447	420	701
pH	-	7.3	6.18	7.24	6.17	7.20	6.97	7.03	7.27

Secondary Parameters	Units	27-Sep-02	28-Oct-02	25-Nov-02	19-Dec-02	27-Jan-03	24-Feb-03	24-Mar-03	16-Apr-03
Arsenic	mg/l	0.034	<0.02	<0.02	<0.02	0.04	0.02	0.02	0.02
Barium	mg/l	0.13	0.23	0.3	0.51	0.19	0.28	0.32	0.16
Cadmium	mg/l	<0.001	<0.001	<0.001	<0.001	0.00	0.00	0.00	0.00
Chromium	mg/l	0.13	0.006	0.019	0.032	0.12	0.04	0.04	0.06
Lead	mg/l	<0.005	<0.005	<0.005	0.0076	0.01	0.01	0.01	0.01
Mercury	mg/l	<0.0004	<0.0004	<0.0004	<0.0004	0.00	0.00	0.00	0.00
Nitrite Nitrogen	mg/L	0.079	<0.05	<0.05	<0.05	0.07	0.05	0.05	0.05
Total Kjeldahl Nitrogen	mg/L	<0.10	30.3	129	316	642	316	296	639
Ortho Phosphorus	mg/L	3.3	0.27	0.36	<0.04	0.81	0.39	0.51	1.20
Potassium	mg/l	853	44.4	246	228	732	225	264	409
Selenium	mg/l	<0.01	<0.01	<0.01	0.012	0.01	0.01	0.01	0.01
Silver	mg/l	<0.05	<0.05	<0.05	<0.05	0.05	0.05	0.05	0.05
Total Dissolved Solids	mg/L	7010	625	2720	2500	7,060	1,300	4,030	3,940
Total Phosphorus	mg/L	5.6	0.29	<0.4	0.36	0.91	0.89	1.70	2.20

TABLE 5
EXAMPLE OF LEACHATE QUALITY DATA
(continued)

CELL 4 (CONTROL AREA)

Parameter		27-Sep-02	28-Oct-02	25-Nov-02	19-Dec-02	27-Jan-03	24-Feb-03	24-Mar-03	16-Apr-03
Biological Oxygen Demand	mg/l	77	64	180	166	64	352	126	128
Chemical Oxygen Demand	mg/l	1,390	974	926	627	1,000	882	535	790
Total Organic Carbon	mg/l	430	271	290	197	355	281	197	236
BOD/COD Ratio	-	0.06	0.07	0.19	0.26	0.06	0.40	0.24	0.16
COD/TOC Ratio	-	3.23	3.59	3.19	3.18	2.82	3.14	2.72	3.35
Chloride	mg/l	1,640	964	721	592	1,890	479	568	923
Sulfate	mg/l	29.5	97.5	<5	<10	5.00	21.90	2.00	2.00
Nitrate Nitrogen	mg/l as N	0.05	0.061	<0.05	0.063	1.80	0.05	0.05	0.05
Ammonia Nitrogen	mg/l as N	1.4	312	912	725	778	217	291	523
pH	-	7.27	7.44	7.13	5.51	7.24	7.09	6.92	7.27

Secondary Parameters	Units	27-Sep-02	28-Oct-02	25-Nov-02	19-Dec-02	27-Jan-03	24-Feb-03	24-Mar-03	16-Apr-03
Arsenic	mg/l	0.026	0.022	<0.02	<0.02	0.02	0.02	0.02	0.02
Barium	mg/l	0.17	0.16	0.21	0.18	0.24	0.19	0.20	0.18
Cadmium	mg/l	<0.001	<0.001	<0.001	<0.001	0.00	0.00	0.00	0.00
Chromium	mg/l	0.1	0.054	0.04	0.03	0.07	0.02	0.02	0.04
Lead	mg/l	<0.005	<0.005	<0.005	0.0053	0.01	0.01	0.01	0.01
Mercury	mg/l	<0.0004	<0.0004	<0.0004	<0.0004	0.00	0.00	0.00	0.00
Nitrite Nitrogen	mg/L	0.063	<0.05	0.05	<0.05	0.05	0.12	0.05	0.05
Total Kjeldahl Nitrogen	mg/L	0.11	582	267	399	700	214	234	417
Ortho Phosphorus	mg/L	3.8	2.2	0.8	0.76	0.88	0.14	0.63	0.83
Potassium	mg/l	618	380	353	277	528	164	225	352
Selenium	mg/l	<0.01	<0.01	<0.01	<0.01	0.01	0.01	0.01	0.01
Silver	mg/l	<0.05	<0.05	<0.05	<0.05	0.05	0.05	0.05	0.05
Total Dissolved Solids	mg/L	6820	3800	3660	3000	4,900	2,020	2,680	3,600
Total Phosphorus	mg/L	4.4	2.3	1.2	0.53	0.93	1.00	1.30	2.00

TABLE 5
EXAMPLE OF LEACHATE QUALITY DATA
(continued)

LEACHATE STORAGE TANK

Parameter	Units	27-Sep-02	28-Oct-02	25-Nov-02	19-Dec-02	27-Jan-03	24-Feb-03	24-Mar-03	16-Apr-03
Biological Oxygen Demand	mg/l	408	360	987	114	1,800	3,270	2,600	2,070
Chemical Oxygen Demand	mg/l	1,160	719	1,740	1,420	6,280	5,730	5,860	3,680
Total Organic Carbon	mg/l	385	412	545	493	1,530	1,340	1,580	1,040
BOD/COD Ratio	-	0.35	0.50	0.57	0.08	0.29	0.57	0.44	0.56
COD/TOC Ratio	-	3.01	1.75	3.19	2.88	4.10	4.28	3.71	3.54
Chloride	mg/l	579	555	432	420	1,310	989	862	957
Sulfate	mg/l	<5	<5	<5	<5	2.00	5.00	5.00	2.00
Nitrate Nitrogen	mg/l as N	<0.05	0.061	0.075	<0.01	0.05	0.15	0.05	0.05
Ammonia Nitrogen	mg/l as N	0.48	298	781	436	470.00	458.00	428.00	430.00
pH	-	6.98	7.2	7.11	7.11	6.99	7.16	7.49	7.30

Secondary Parameters	Units	27-Sep-02	28-Oct-02	25-Nov-02	19-Dec-02	27-Jan-03	24-Feb-03	24-Mar-03	16-Apr-03
Arsenic	mg/l	0.026	0.02	<0.02	<0.02	0.03	0.02	0.03	0.02
Barium	mg/l	0.31	0.28	0.27	0.32	0.77	0.48	0.55	0.41
Cadmium	mg/l	<0.001	<0.001	<0.001	<0.001	0.00	0.00	0.00	0.00
Chromium	mg/l	0.021	0.023	0.022	0.02	0.04	0.03	0.04	0.03
Lead	mg/l	<0.005	<0.005	<0.005	0.0066	0.01	0.01	0.01	0.01
Mercury	mg/l	<0.0004	<0.0004	<0.0004	<0.0004	0.00	0.00	0.00	0.00
Nitrite Nitrogen	mg/L	0.085	0.11	0.1	0.24	0.08	0.15	0.05	0.05
Total Kjeldahl Nitrogen	mg/L	3.1	3960	201	278	579	434	310	360
Ortho Phosphorus	mg/L	<0.02	<0.02	<0.02	<0.02	0.39	0.02	0.02	0.02
Potassium	mg/l	184	203	175	131	288	272	272	276
Selenium	mg/l	<0.01	<0.01	<0.01	<0.01	0.01	0.01	0.01	0.02
Silver	mg/l	<0.05	<0.05	<0.05	<0.05	0.05	0.05	0.05	0.05
Total Dissolved Solids	mg/L	2520	2270	2480	2160	5,500	5,000	5,450	4,620
Total Phosphorus	mg/L	0.26	0.37	<1	0.23	0.42	0.68	1.00	1.70

TABLE 6
SUMMARY OF LEACHATE QUANTITY DATA
Project XL
King George County Landfill and Recycling Center
King George, Virginia

2002																
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Annual Total
Control Area	Pump House #1	Primary	gallons	60,500	16,300	72,500	84,500	30,000	16,400	17,000	25,100	16,200	64,300	87,600	107,900	598,300
		Secondary	gallons	0	0	0	200	0	0	0	200	0	0	0	200	600
	Pump House #2	Primary	gallons	38,000	18,800	37,900	33,400	21,900	17,700	18,900	28,300	27,200	60,500	72,000	91,600	466,200
		Secondary	gallons													0
Test Area	Pump House #3	Primary	gallons	13,500	7,600	22,700	33,800	17,100	10,200	10,500	14,000	12,400	38,700	66,900	66,900	314,300
		Secondary	gallons													0
Control Area	Pump House #4	Primary	gallons	40,400	19,100	60,600	66,700	23,400	30,600	17,100	31,100	20,500	68,200	152,700	178,800	709,200
		Secondary	gallons	0	0	0	0	0	0	0	0	0	0	300	0	300
	Monthly Total		gallons	152,400	61,800	193,700	218,600	92,400	74,900	63,500	98,700	76,300	231,700	379,500	445,400	2,088,900

Note:

This table is based on site records for the King George County Landfill and Recycling Center showing the amount of leachate collected in the primary and secondary leachate collection system. These records were provided by the site manager (Howard Burns).
The test area is represented by Pump House #3 and the control area is represented by Pump Houses #1, 2, and 4.

TABLE 6
SUMMARY OF LEACHATE QUANTITY DATA
(continued)

2003																
				Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Annual Total
Control Area	Pump House #1	Primary	gallons	53,400	0	0	0	0	0							53,400
		Secondary	gallons	0	0	600	0	0	400							1,000
	Pump House #2	Primary	gallons	63,700	116,550	116,550	69,000	70,950	70,950							507,700
		Secondary	gallons													0
Test Area	Pump House #3	Primary	gallons	51,400	105,000	105,000	69,200	83,000	83,000							496,600
		Secondary	gallons													0
Control Area	Pump House #4	Primary	gallons	118,700	297,450	297,450	198,300	290,350	390,350							1,592,600
		Secondary	gallons	0	0	0	0	400	400							800
	Monthly Total		gallons	287,200	519,000	519,600	336,500	444,700	545,100							2,652,100

Note:

This table is based on site records for the King George County Landfill and Recycling Center showing the amount of leachate collected in the primary and secondary leachate collection system.

These records were provided by the site manager (Howard Burns).

The test area is represented by Pump House #3 and the control area is represented by Pump Houses #1, 2, and 4.

The flowmeter in Pump House #1 malfunctioned and was replaced in June 2003

TABLE 7
LIQUID APPLICATION SUMMARY
Project XL
King George County Landfill and Recycling Center
King George, Virginia

Date	Liquid Applied (gallons)							Monthly Summary						
	Trench 1	Trench 2	Trench 3	Trench 4	Trench 5	Trench 6	Cumulative Total	Trench 1	Trench 2	Trench 3	Trench 4	Trench 5	Trench 6	Monthly Total
11/1/2002	27,971	0	5,990	0	0	0	33,962							
11/2/2002	29,017	7,357	0	0	0	0	70,336							
11/3/2002	0	0	0	0	0	0	70,336							
11/4/2002	40,175	0	0	0	0	0	110,511							
11/5/2002	20,871	0	0	0	0	0	131,381							
11/6/2002	0	0	0	0	0	0	131,381							
11/7/2002	0	0	0	0	0	0	131,381							
11/8/2002	39,108	0	0	0	0	0	170,489							
11/9/2002	0	0	35,540	0	0	0	206,029							
11/10/2002	0	0	0	0	0	0	206,029							
11/11/2002	30,676	5,835	0	0	0	0	242,540							
11/12/2002	0	0	34,137	0	0	0	276,676							
11/13/2002	0	0	31,974	0	0	0	308,650							
11/14/2002	0	0	0	0	0	0	308,650							
11/15/2002	7,561	0	20,904	0	0	0	337,115							
11/16/2002	0	0	0	0	0	0	337,115							
11/17/2002	0	0	0	0	0	0	337,115							
11/18/2002	5,122	0	0	0	0	0	342,237							
11/19/2002	4,983	0	0	0	0	0	347,221							
11/20/2002	0	0	0	0	0	0	347,221							
11/21/2002	0	0	0	0	0	0	347,221							
11/22/2002	0	0	0	0	0	0	347,221							
11/23/2002	0	0	0	0	0	0	347,221							
11/24/2002	0	0	0	0	0	0	347,221							
11/25/2002	0	0	0	0	0	0	347,221							
11/26/2002	0	0	0	35,743	0	0	382,964							
11/27/2002	0	0	0	36,506	0	0	419,470							
11/28/2002	0	0	0	0	0	0	419,470							
11/29/2002	0	0	0	38,811	0	0	458,281							
11/30/2002	0	0	0	23,542	0	0	481,823	205,484	13,192	128,544	134,602	0	0	481,823
12/1/2002	0	0	0	0	0	0	481,823							
12/2/2002	0	0	0	32,799	0	0	514,621							
12/3/2002	26,297	0	0	12,542	0	0	553,460							
12/4/2002	19,878	0	13,444	0	0	0	586,782							
12/5/2002	0	0	0	0	0	0	586,782							
12/6/2002	0	0	0	0	0	0	586,782							
12/7/2002	0	0	0	0	0	0	586,782							
12/8/2002	0	0	0	0	0	0	586,782							
12/9/2002	5,592	0	0	22,930	0	0	615,305							
12/10/2002	0	0	0	31,796	0	0	647,101							
12/11/2002	0	0	0	0	0	0	647,101							
12/12/2002	0	0	0	24,137	0	0	671,237							
12/13/2002	0	0	0	0	39,458	0	710,695							
12/14/2002	0	0	0	0	23,177	0	733,873							
12/15/2002	0	0	0	0	0	0	733,873							
12/16/2002	0	0	0	0	31,103	0	764,976							
12/17/2002	0	0	0	0	37,427	0	802,403							
12/18/2002	0	0	0	0	39,616	0	842,019							
12/19/2002	0	0	0	29,137	38,631	0	909,787							
12/20/2002	0	0	0	0	18,261	0	928,048							
12/21/2002	0	0	0	13,062	48,861	0	989,971							
12/22/2002	0	0	0	0	0	0	989,971							
12/23/2002	6,012	0	0	11,801	56,755	0	1,064,540							
12/24/2002	0	0	0	0	18,540	0	1,083,079							
12/25/2002	0	0	0	0	0	0	1,083,079							

TABLE 7
LIQUID APPLICATION SUMMARY
(continued)

Date	Liquid Applied (gallons)							Monthly Summary						
	Trench 1	Trench 2	Trench 3	Trench 4	Trench 5	Trench 6	Cumulative Total	Trench 1	Trench 2	Trench 3	Trench 4	Trench 5	Trench 6	Monthly Total
12/26/2002	0	0	0	0	36,631	0	1,119,710							
12/27/2002	0	0	0	0	12,343	0	1,132,053							
12/28/2002	0	0	0	0	0	0	1,132,053							
12/29/2002	0	0	0	0	0	0	1,132,053							
12/30/2002	0	0	0	0	0	0	1,132,053							
12/31/2002	0	0	0	0	0	0	1,132,053	57,779	0	13,444	178,204	400,803	0	650,230
1/1/2003	0	0	0	0	0	0	1,132,053							
1/2/2003	0	0	0	0	0	0	1,132,053							
1/3/2003	0	0	0	0	0	0	1,132,053							
1/4/2003	0	0	0	0	12,875	0	1,144,928							
1/5/2003	0	0	0	0	0	0	1,144,928							
1/6/2003	0	0	0	0	0	0	1,144,928							
1/7/2003	0	0	0	0	0	0	1,144,928							
1/8/2003	0	0	0	0	0	0	1,144,928							
1/9/2003	0	0	0	0	0	0	1,144,928							
1/10/2003	0	0	0	0	0	0	1,144,928							
1/11/2003	0	0	0	0	0	0	1,144,928							
1/12/2003	0	0	0	0	0	0	1,144,928							
1/13/2003	0	0	0	0	0	0	1,144,928							
1/14/2003	0	0	0	0	0	0	1,144,928							
1/15/2003	0	0	0	0	0	0	1,144,928							
1/16/2003	0	0	0	0	0	0	1,144,928							
1/17/2003	0	0	0	0	0	0	1,144,928							
1/18/2003	0	0	0	0	0	0	1,144,928							
1/19/2003	0	0	0	0	0	0	1,144,928							
1/20/2003	0	0	0	0	0	0	1,144,928							
1/21/2003	0	0	0	0	0	84,945	1,229,873							
1/22/2003	0	0	0	0	0	0	1,229,873							
1/23/2003	0	0	0	0	0	0	1,229,873							
1/24/2003	0	0	0	0	0	84,727	1,314,600							
1/25/2003	0	0	0	0	0	99,859	1,414,458							
1/26/2003	0	0	0	0	0	82,669	1,497,127							
1/27/2003	0	0	0	0	0	0	1,497,127							
1/28/2003	0	0	0	0	0	0	1,497,127							
1/29/2003	0	0	0	0	0	0	1,497,127							
1/30/2003	0	0	0	0	0	0	1,497,127							
1/31/2003	0	0	0	0	0	0	1,497,127	0	0	0	0	12,875	352,199	365,074
2/1/2003	0	0	0	0	0	0	1,497,127							
2/2/2003	0	0	0	0	0	0	1,497,127							
2/3/2003	0	0	0	0	0	0	1,497,127							
2/4/2003	0	0	0	0	0	0	1,497,127							
2/5/2003	0	0	0	0	0	0	1,497,127							
2/6/2003	0	0	0	0	0	0	1,497,127							
2/7/2003	0	0	0	0	0	0	1,497,127							
2/8/2003	0	0	0	0	0	0	1,497,127							
2/9/2003	0	0	0	0	0	0	1,497,127							
2/10/2003	0	0	0	0	0	0	1,497,127							
2/11/2003	0	0	0	0	0	0	1,497,127							
2/12/2003	0	0	0	0	0	0	1,497,127							
2/13/2003	0	0	0	0	0	0	1,497,127							
2/14/2003	0	0	0	0	0	0	1,497,127							
2/15/2003	0	0	0	0	0	0	1,497,127							
2/16/2003	0	0	0	0	0	0	1,497,127							
2/17/2003	0	0	0	0	0	0	1,497,127							
2/18/2003	0	0	0	0	0	0	1,497,127							

TABLE 7
LIQUID APPLICATION SUMMARY
(continued)

Date	Liquid Applied (gallons)							Monthly Summary						
	Trench 1	Trench 2	Trench 3	Trench 4	Trench 5	Trench 6	Cumulative Total	Trench 1	Trench 2	Trench 3	Trench 4	Trench 5	Trench 6	Monthly Total
2/19/2003	0	0	0	0	0	0	1,497,127							
2/20/2003	0	0	0	0	0	75,374	1,572,501							
2/21/2003	0	0	0	0	0	0	1,572,501							
2/22/2003	0	0	0	0	0	0	1,572,501							
2/23/2003	0	0	0	0	0	0	1,572,501							
2/24/2003	0	0	0	0	0	35,799	1,608,300							
2/25/2003	0	0	0	0	0	0	1,608,300							
2/26/2003	0	0	0	0	0	0	1,608,300							
2/27/2003	0	0	0	0	0	0	1,608,300							
2/28/2003	0	0	0	0	0	0	1,608,300	0	0	0	0	0	111,173	111,173
3/1/2003	28,297	0	7,477	0	0	29,194	1,673,269							
3/2/2003	0	0	0	0	0	0	1,673,269							
3/3/2003	0	0	22,096	0	0	77,170	1,772,535							
3/4/2003	28,724	29,947	29,058	7,576	0	0	1,867,839							
3/5/2003	29,952	0	0	29,556	0	0	1,927,348							
3/6/2003	0	0	0	0	0	0	1,927,348							
3/7/2003	0	0	0	0	0	0	1,927,348							
3/8/2003	0	0	0	0	0	0	1,927,348							
3/9/2003	0	0	0	0	0	0	1,927,348							
3/10/2003	0	58,153	0	0	0	0	1,985,501							
3/11/2003	0	0	0	51,444	0	0	2,036,945							
3/12/2003	0	0	0	59,568	0	0	2,096,513							
3/13/2003	21,477	0	0	29,995	0	0	2,147,985							
3/14/2003	0	0	0	0	0	0	2,147,985							
3/15/2003	0	0	0	0	0	0	2,147,985							
3/16/2003	0	0	0	0	0	0	2,147,985							
3/17/2003	0	0	0	0	0	0	2,147,985							
3/18/2003	0	0	0	0	0	0	2,147,985							
3/19/2003	0	0	0	0	0	0	2,147,985							
3/20/2003	0	0	0	0	0	0	2,147,985							
3/21/2003	0	0	0	0	0	0	2,147,985							
3/22/2003	0	0	0	0	0	0	2,147,985							
3/23/2003	0	0	0	0	0	0	2,147,985							
3/24/2003	0	0	0	0	0	0	2,147,985							
3/25/2003	0	0	0	0	0	0	2,147,985							
3/26/2003	0	0	0	0	0	0	2,147,985							
3/27/2003	0	0	0	0	0	0	2,147,985							
3/28/2003	0	0	0	0	0	0	2,147,985							
3/29/2003	0	0	0	0	0	0	2,147,985							
3/30/2003	0	0	0	0	0	0	2,147,985							
3/31/2003	0	0	0	0	0	0	2,147,985	108,451	88,101	58,631	178,139	0	106,365	539,686
4/1/2003	0	0	0	0	0	0	2,147,985							
4/2/2003	0	0	0	0	0	0	2,147,985							
4/3/2003	0	0	0	0	0	0	2,147,985							
4/4/2003	0	0	0	0	0	0	2,147,985							
4/5/2003	0	0	0	0	0	0	2,147,985							
4/6/2003	0	0	0	0	0	0	2,147,985							
4/7/2003	0	0	0	0	0	0	2,147,985							
4/8/2003	0	0	0	0	0	0	2,147,985							
4/9/2003	0	0	0	0	0	0	2,147,985							
4/10/2003	0	0	0	0	0	0	2,147,985							
4/11/2003	0	0	0	0	0	8,026	2,156,012							
4/12/2003	0	0	0	0	0	0	2,156,012							
4/13/2003	0	0	0	0	0	0	2,156,012							
4/14/2003	0	0	0	0	0	0	2,156,012							

TABLE 7
LIQUID APPLICATION SUMMARY
(continued)

Date	Liquid Applied (gallons)							Monthly Summary						
	Trench 1	Trench 2	Trench 3	Trench 4	Trench 5	Trench 6	Cumulative Total	Trench 1	Trench 2	Trench 3	Trench 4	Trench 5	Trench 6	Monthly Total
4/15/2003	0	0	0	0	0	0	2,156,012							
4/16/2003	0	0	0	0	0	0	2,156,012							
4/17/2003	0	0	0	0	0	0	2,156,012							
4/18/2003	0	0	0	0	0	0	2,156,012							
4/19/2003	0	0	8,312	0	0	0	2,164,324							
4/20/2003	0	0	0	0	0	0	2,164,324							
4/21/2003	0	0	0	0	0	0	2,164,324							
4/22/2003	0	0	0	0	0	0	2,164,324							
4/23/2003	0	0	0	0	0	0	2,164,324							
4/24/2003	0	0	0	0	0	0	2,164,324							
4/25/2003	0	0	0	0	0	0	2,164,324							
4/26/2003	0	0	0	2,753	0	0	2,167,077							
4/27/2003	0	0	0	0	0	0	2,167,077							
4/28/2003	0	0	0	0	0	0	2,167,077							
4/29/2003	0	0	0	0	0	0	2,167,077							
4/30/2003	0	0	0	0	0	0	2,167,077	0	0	8,312	2,753	0	8,026	19,091
5/1/2003	0	0	0	0	0	0	2,167,077							
5/2/2003	0	0	0	0	0	0	2,167,077							
5/3/2003	0	0	0	0	0	0	2,167,077							
5/4/2003	0	0	0	0	0	0	2,167,077							
5/5/2003	0	0	0	0	0	0	2,167,077							
5/6/2003	0	0	0	0	0	0	2,167,077							
5/7/2003	0	0	0	0	0	0	2,167,077							
5/8/2003	0	0	0	0	0	0	2,167,077							
5/9/2003	0	0	0	0	0	0	2,167,077							
5/10/2003	0	0	0	0	0	0	2,167,077							
5/11/2003	0	0	0	0	0	0	2,167,077							
5/12/2003	0	0	0	0	0	35,882	2,202,959							
5/13/2003	30,679	0	0	0	0	0	2,233,638							
5/14/2003	0	14,787	0	13,050	0	0	2,261,475							
5/15/2003	0	0	0	6,842	22,372	0	2,290,688							
5/16/2003	0	0	0	0	0	52,966	2,343,655							
5/17/2003	0	0	0	0	0	0	2,343,655							
5/18/2003	0	0	0	0	0	0	2,343,655							
5/19/2003	7,475	30,309	0	0	0	0	2,381,439							
5/20/2003	0	7,607	0	0	29,746	0	2,418,791							
5/21/2003	0	0	0	0	7,492	29,398	2,455,681							
5/22/2003	0	0	0	29,463	0	7,369	2,492,513							
5/23/2003	0	29,187	0	7,971	0	0	2,529,671							
5/24/2003	0	0	0	0	0	0	2,529,671							
5/25/2003	0	0	0	0	0	0	2,529,671							
5/26/2003	0	7,106	0	0	0	30,072	2,566,849							
5/27/2003	0	23,012	0	0	0	0	2,589,861							
5/28/2003	0	13,540	0	0	24,213	0	2,627,614							
5/29/2003	0	0	0	32,146	7,760	0	2,667,520							
5/30/2003	0	0	0	7,225	0	31,175	2,705,921							
5/31/2003	0	11,616	11,576	22,933	0	11,192	2,763,237	38,153	137,163	11,576	119,631	91,583	198,055	596,161
6/1/2003	0	0	0	0	0	0	2,763,237							
6/2/2003	0	0	0	0	0	0	2,763,237							
6/3/2003	0	0	0	0	0	0	2,763,237							
6/4/2003	0	0	0	0	0	0	2,763,237							
6/5/2003	0	0	0	0	0	0	2,763,237							
6/6/2003	0	0	0	0	0	0	2,763,237							
6/7/2003	0	0	0	0	0	0	2,763,237							
6/8/2003	0	0	0	0	0	0	2,763,237							

TABLE 7
LIQUID APPLICATION SUMMARY
(continued)

Date	Liquid Applied (gallons)							Monthly Summary						
	Trench 1	Trench 2	Trench 3	Trench 4	Trench 5	Trench 6	Cumulative Total	Trench 1	Trench 2	Trench 3	Trench 4	Trench 5	Trench 6	Monthly Total
6/9/2003	0	0	0	0	0	0	2,763,237							
6/10/2003	0	0	0	0	0	0	2,763,237							
6/11/2003	0	0	0	0	0	0	2,763,237							
6/12/2003	0	0	0	0	0	0	2,763,237							
6/13/2003	0	0	0	0	0	0	2,763,237							
6/14/2003	0	0	0	0	0	0	2,763,237							
6/15/2003	0	0	0	0	0	0	2,763,237							
6/16/2003	0	0	0	0	0	0	2,763,237							
6/17/2003	0	0	0	0	0	0	2,763,237							
6/18/2003	0	0	0	0	0	0	2,763,237							
6/19/2003	0	0	0	0	0	0	2,763,237							
6/20/2003	0	0	0	0	0	0	2,763,237							
6/21/2003	0	0	0	0	0	0	2,763,237							
6/22/2003	0	0	0	0	0	0	2,763,237							
6/23/2003	0	0	0	0	0	0	2,763,237							
6/24/2003	0	0	0	0	0	0	2,763,237							
6/25/2003	0	0	0	0	0	0	2,763,237							
6/26/2003	0	0	0	0	0	0	2,763,237							
6/27/2003	0	0	0	0	0	0	2,763,237							
6/28/2003	0	0	0	0	0	0	2,763,237							
6/29/2003	0	0	0	0	0	0	2,763,237							
6/30/2003	0	0	0	0	0	0	2,763,237	0	0	0	0	0	0	0

Total per tren 381,897 238,456 214,515 613,328 505,261 775,818

Total Leachate Recirculated

2,763,237

Daily Averag 1,578 985 886 2,534 2,088 3,206

Total Daily Average

11,418

All units are in gallons

TABLE 8
SUMMARY OF LANDFILL SETTLEMENT DATA
Project XL
King George County Landfill and Recycling Center
King George, Virginia

Point No.	Northing	Easting	Elev 11/11/2002
Control Area			
2004	6,785,273.540	11,825,080.835	214.14
2005	6,785,281.902	11,825,180.470	210.19
2006	6,785,286.082	11,825,230.287	209.06
2007	6,785,386.598	11,825,231.963	211.26
2008	6,785,373.252	11,825,072.613	213.42
2017	6,785,464.512	11,824,964.606	214.25
2018	6,785,472.923	11,825,064.335	214.09
2019	6,785,481.240	11,825,163.909	212.24
2020	6,785,487.529	11,825,238.699	214.79
2021	6,785,587.234	11,825,230.410	216.24
2022	6,785,580.952	11,825,155.668	215.52
2033	6,785,663.938	11,824,948.007	217.23
2034	6,785,672.348	11,825,047.680	216.58
2035	6,785,680.711	11,825,147.352	214.45
2036	6,785,689.045	11,825,246.985	217.93
2037	6,785,788.719	11,825,238.636	217.97
2038	6,785,790.026	11,825,253.647	218.52
2039	6,785,780.391	11,825,139.023	219.68
2050	6,785,863.427	11,824,931.430	221.82
2051	6,785,871.714	11,825,031.054	221.73
2052	6,785,880.114	11,825,130.756	220.44
2053	6,785,888.458	11,825,230.378	219.50
2054	6,785,891.411	11,825,265.294	218.52
2055	6,785,991.104	11,825,256.952	218.11
2056	6,785,992.789	11,825,276.900	224.73
2057	6,785,979.834	11,825,122.448	224.14
2068	6,786,062.852	11,824,914.813	N/A
2069	6,786,071.068	11,825,014.403	224.15
2070	6,786,079.485	11,825,114.077	221.38
2071	6,786,087.793	11,825,213.694	219.70
2072	6,786,094.066	11,825,288.420	223.36
2073	6,786,193.636	11,825,280.010	222.96
2074	6,786,195.259	11,825,299.912	224.44
2075	6,786,294.827	11,825,291.503	224.07
2076	6,786,295.215	11,825,296.486	222.78
2077	6,786,298.125	11,825,331.369	225.17
Test Area			
2000	6,785,240.088	11,824,682.224	213.49
2001	6,785,248.456	11,824,781.930	212.98
2002	6,785,256.812	11,824,881.506	214.76
2003	6,785,265.180	11,824,981.217	211.83
2009	6,785,364.886	11,824,972.951	212.76

TABLE 8
SUMMARY OF LANDFILL SETTLEMENT DATA
(continued)

Point No.	Northing	Easting	Elev 11/11/2002
2010	6,785,356.487	11,824,873.240	215.54
2011	6,785,348.144	11,824,773.755	215.04
2012	6,785,348.134	11,824,773.630	216.14
2013	6,785,339.845	11,824,674.019	217.27
2014	6,785,439.424	11,824,665.653	216.17
2015	6,785,447.827	11,824,765.325	213.64
2016	6,785,456.211	11,824,865.005	213.01
2023	6,785,572.591	11,825,056.004	213.57
2024	6,785,564.236	11,824,956.388	215.79
2025	6,785,555.898	11,824,856.730	217.20
2026	6,785,547.534	11,824,757.074	218.14
2027	6,785,539.183	11,824,657.418	218.13
2028	6,785,537.109	11,824,632.498	219.30
2029	6,785,636.758	11,824,624.140	219.91
2030	6,785,638.817	11,824,649.053	219.66
2031	6,785,647.264	11,824,748.715	218.54
2032	6,785,655.574	11,824,848.362	216.32
2040	6,785,772.064	11,825,039.413	219.10
2041	6,785,763.606	11,824,939.696	219.18
2042	6,785,755.305	11,824,840.099	221.45
2043	6,785,746.963	11,824,740.458	220.63
2044	6,785,738.644	11,824,640.796	219.94
2045	6,785,734.462	11,824,590.978	221.48
2046	6,785,834.070	11,824,582.620	221.53
2047	6,785,838.299	11,824,632.437	222.60
2048	6,785,846.689	11,824,732.115	220.37
2049	6,785,854.908	11,824,831.718	221.17
2058	6,785,971.553	11,825,022.844	223.06
2059	6,785,963.148	11,824,923.161	223.00
2060	6,785,954.797	11,824,823.503	224.64
2061	6,785,946.396	11,824,723.855	224.92
2062	6,785,938.014	11,824,624.196	224.32
2063	6,785,931.278	11,824,544.488	231.42
2064	6,786,030.993	11,824,536.111	226.52
2065	6,786,037.774	11,824,615.832	225.65
2066	6,786,046.102	11,824,715.479	224.16
2067	6,786,054.381	11,824,815.140	225.35

TABLE 9
RAINFALL DATA SUMMARY
Project XL
King George County Landfill and Recycling Center
King George County, Virginia

Month	Average Precipitation	2003 Precipitation	Departure from Normal
January	3.3	1.84	-1.46
February	3.05	7.14	4.09
March	4.01	4.98	0.97
April	3.1	3.51	0.41
May	3.78	8.24	4.46
June	3.63	3.7	0.07
July	4.11	-	-
August	3.68	-	-
September	3.66	-	-
October	3.47	-	-
November	3.25	-	-
December	3.39	-	-
Total	42.42	29.15	8.54

Note: The totals for 2003 precipitation and departure from normal are for the year to date.
Rainfall data is for Fredericksburg, Virginia.

TABLE 10
SUMMARY OF WASTE CHARACTERIZATION DATA
Project XL
King George County Landfill and Recycling Center
King George County, Virginia

	Sample Date	Location	Depth (ft)	Moisture (%)	VS (%)	Cellulose (%)	Lignin (%)	Cell/Lig Ratio	pH (Field)	BMP (mL/g)
Control Area	8/2/2001	Control 1	0-15	46.79	54.93 55.95 54.61	34.07 34.58	16.98 15.50	2.01 2.23	6.5	65.98 55.33 61.81
	8/2/2001	Control 1	15-30	38.83	36.15 51.33 47.20	35.77 39.24	17.40 14.40	2.06 2.73	7.1	61.36 65.39 56.84
	8/2/2001	Control 1	30-45	24.00	47.33 43.58 43.46	28.92 34.10	14.60 16.10	1.98 2.12	6.5	47.28 60.02 45.69
	8/2/2001	Control 1	45-55	31.63	50.48 38.85 39.56	31.33 31.36	20.60 20.20	1.52 1.55	5.9	56.82 53.45 49.90
	8/2/2001	Control 1	55-70	26.19	49.18 56.22 51.10	37.83 33.82	15.50 16.30	2.44 2.07	5.4	60.60 49.01 63.11
	8/2/2001	Control 2	0-15	26.87	51.70 54.71 54.23	28.13 30.31	16.60 18.40	1.69 1.65	6.8	66.89 63.09 70.96
	8/2/2001	Control 2	15-30	37.94	70.30 72.41 72.29	37.24 33.80	14.50 14.95	2.57 2.26	6.8	54.11 67.40 52.77
	8/3/2001	Control 2	30-45	34.14	66.71 67.42 65.93	40.00 41.51	17.50 17.90	2.29 2.32	5.6	41.72 50.13 59.66
	8/3/2001	Control 2	45-60	25.74	43.16 36.85 42.51	31.34 30.31	16.03 14.27	1.96 2.12	5.7	44.21 44.92 52.92
	8/3/2001	Control 2	60-70	30.99	63.42 68.24 64.19	38.31 38.87	19.20 20.20	2.00 1.92	5.8	60.29 62.82 58.47
Test Area	8/1/2001	Bio 1	0-15	43.24	37.92 42.52 40.81	41.54 29.56	15.10 14.80	2.75 2.00	6.2	54.23 52.86 55.11
	8/1/2001	Bio 1	15-30	33.22	59.11 56.11 55.61	30.16 31.50	15.90 19.60	1.90 1.61	6.3	59.65 59.43 59.11
	8/1/2001	Bio 1	30-45	29.98	84.09 86.16 85.87	46.36 44.05	22.80 21.60	2.03 2.04	6.7	58.09 59.01 63.08
	8/1/2001	Bio 1	45-60	29.57	71.82 70.59 69.91	42.96 41.52	19.80 20.00	2.17 2.08	6.7	68.43 69.13 68.51
	8/1/2001	Bio 1	60-75	28.40	76.52 73.66 75.50	43.71 47.18	16.50 16.00	2.65 2.95	6.5	65.75 64.50 65.72
	7/31/2001	Bio 2	0-15	47.55	66.33 67.31 68.67	38.17 35.99	22.80 23.25	1.67 1.55	6.3	56.99 59.11 61.44

TABLE 10
SUMMARY OF WASTE CHARACTERIZATION DATA
Project XL
King George County Landfill and Recycling Center
King George County, Virginia

	Sample Date	Location	Depth (ft)	Moisture (%)	VS (%)	Cellulose (%)	Lignin (%)	Cell/Lig Ratio	pH (Field)	BMP (mL/g)
Test Area	7/31/2001	Bio 2	15-30	46.26	65.61 63.50 65.55	31.50 34.17	23.28 21.10	1.35 1.62	5.8	55.19 55.45 54.29
	7/31/2001	Bio 2	30-45	39.97	53.11 57.05 54.32	31.42 39.49	19.94 22.94	1.58 1.72	6.6	51.14 49.98 53.29
	7/31/2001	Bio 2	45-60	45.44	71.56 72.01 70.82	39.00 32.99	23.06 23.91	1.69 1.38	5.6	67.27 67.47 66.77
	7/31/2001	Bio 2	60-75	40.19	69.23 71.53 71.75	37.46 41.60	25.85 25.56	1.45 1.63	5.4	61.65 60.32 60.20
	7/31/2001	Bio 3	0-15	30.70	71.60 72.68 71.80	44.34 52.14	15.50 15.00	2.86 3.48	5.4	65.01 58.48 62.03
	7/31/2001	Bio 3	15-30	35.71	61.58 57.21 58.64	34.48 35.86	14.70 14.10	2.35 2.54	5.8	53.58 53.53 54.16
	8/1/2001	Bio 3	30-45	39.86	55.12 51.37 52.84	26.07 26.51	23.54 29.46	1.11 0.90	8.3	54.72 55.69 51.44
	8/1/2001	Bio 3	45-60	43.87	69.44 72.26 65.85	37.02 33.94	19.63 21.22	1.89 1.60	7.6	62.05 62.58 63.07
	8/1/2001	Bio 3	60-75	35.18	49.21 44.06 43.13	16.72 21.16	19.71 21.33	0.85 0.99	5.8	54.91 57.04 57.49

TABLE 10
SUMMARY OF WASTE CHARACTERIZATION DATA
(continued)

	Sample Date	Location	Depth (ft)	Moisture (%)	VS (%)	Cellulose (%)	Lignin (%)	Cell/Lig Ratio	pH (Field)	BMP (mL/g)
Test Area	7/31/2001	Bio 2	15-30	46.26	65.61 63.50 65.55	31.50 34.17	23.28 21.10	1.35 1.62	5.8	55.19 55.45 54.29
	7/31/2001	Bio 2	30-45	39.97	53.11 57.05 54.32	31.42 39.49	19.94 22.94	1.58 1.72	6.6	51.14 49.98 53.29
	7/31/2001	Bio 2	45-60	45.44	71.56 72.01 70.82	39.00 32.99	23.06 23.91	1.69 1.38	5.6	67.27 67.47 66.77
	7/31/2001	Bio 2	60-75	40.19	69.23 71.53 71.75	37.46 41.60	25.85 25.56	1.45 1.63	5.4	61.65 60.32 60.20
	7/31/2001	Bio 3	0-15	30.70	71.60 72.68 71.80	44.34 52.14	15.50 15.00	2.86 3.48	5.4	65.01 58.48 62.03
	7/31/2001	Bio 3	15-30	35.71	61.58 57.21 58.64	34.48 35.86	14.70 14.10	2.35 2.54	5.8	53.58 53.53 54.16
	8/1/2001	Bio 3	30-45	39.86	55.12 51.37 52.84	26.07 26.51	23.54 29.46	1.11 0.90	8.3	54.72 55.69 51.44
	8/1/2001	Bio 3	45-60	43.87	69.44 72.26 65.85	37.02 33.94	19.63 21.22	1.89 1.60	7.6	62.05 62.58 63.07
	8/1/2001	Bio 3	60-75	35.18	49.21 44.06 43.13	16.72 21.16	19.71 21.33	0.85 0.99	5.8	54.91 57.04 57.49

FIGURE 2
LIQUID APPLIED TO LANDFILL - CUMULATIVE
Project XL
King George County Landfill and Recycling Center
King George, Virginia

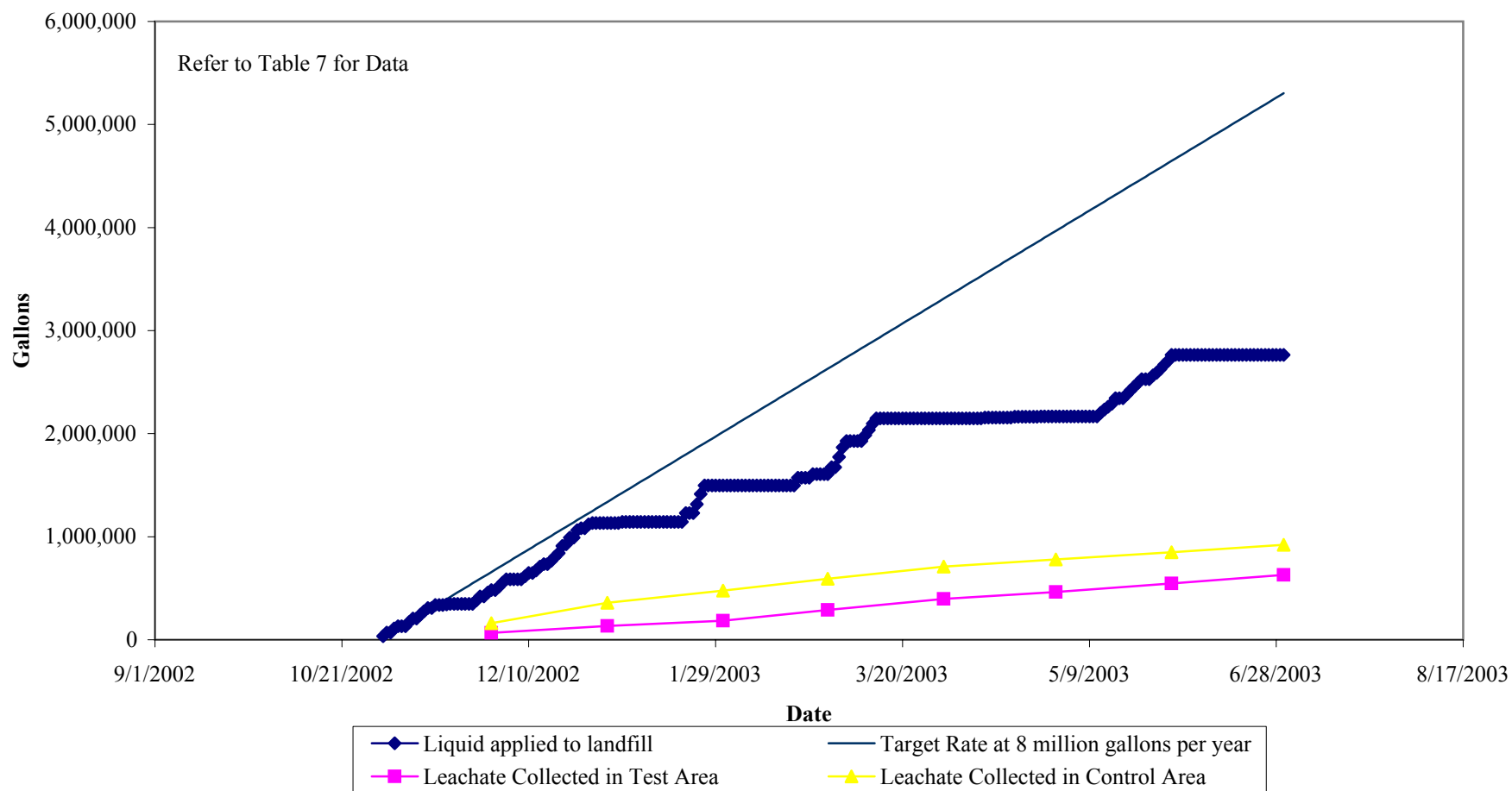


FIGURE 3
BOD/COD RATIO
Project XL
King George County Landfill and Recycling Center
King George, Virginia

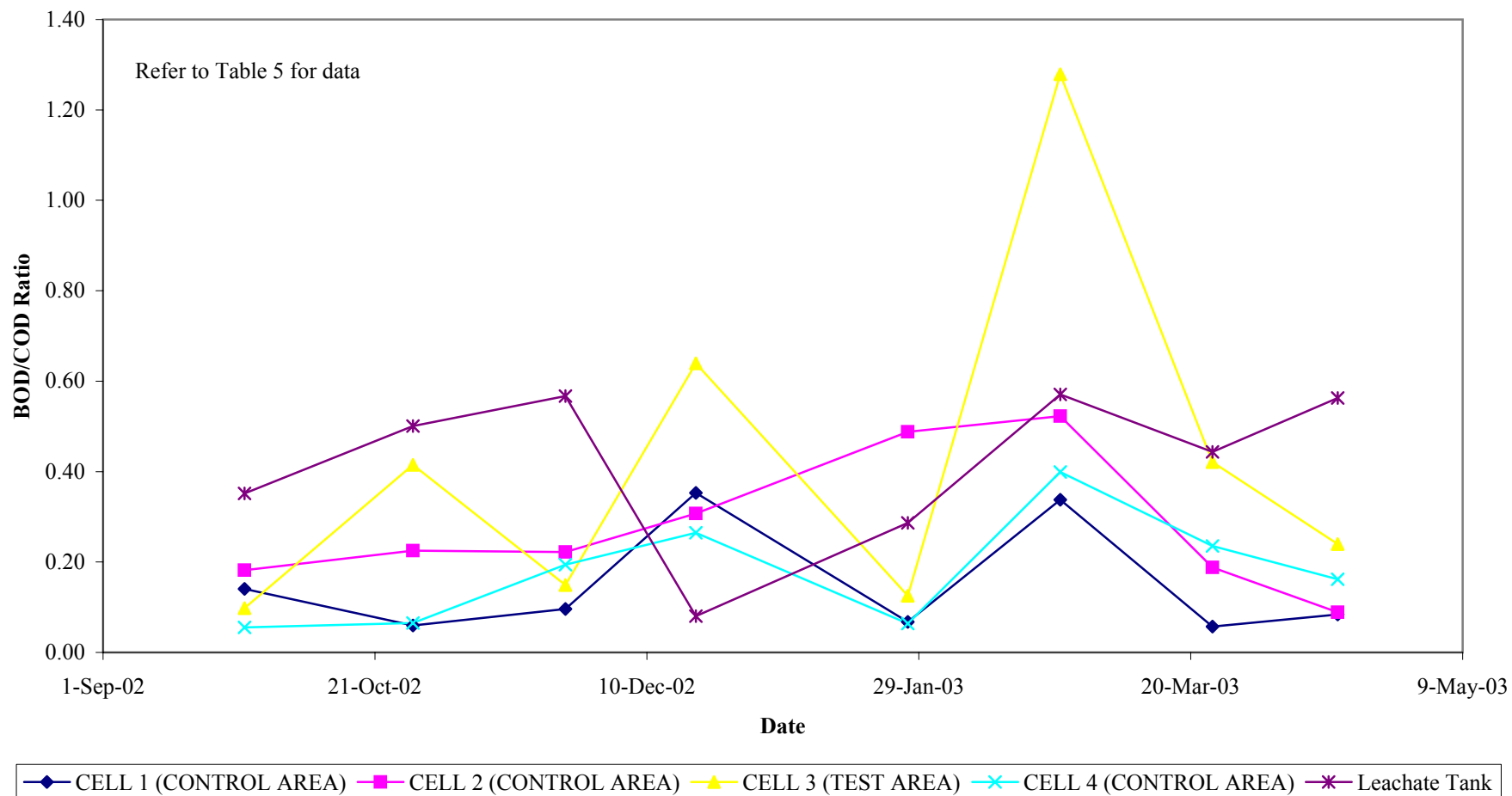


FIGURE 4
COD/TOC RATIO
Project XL
King George County Landfill and Recycling Center
King George, Virginia

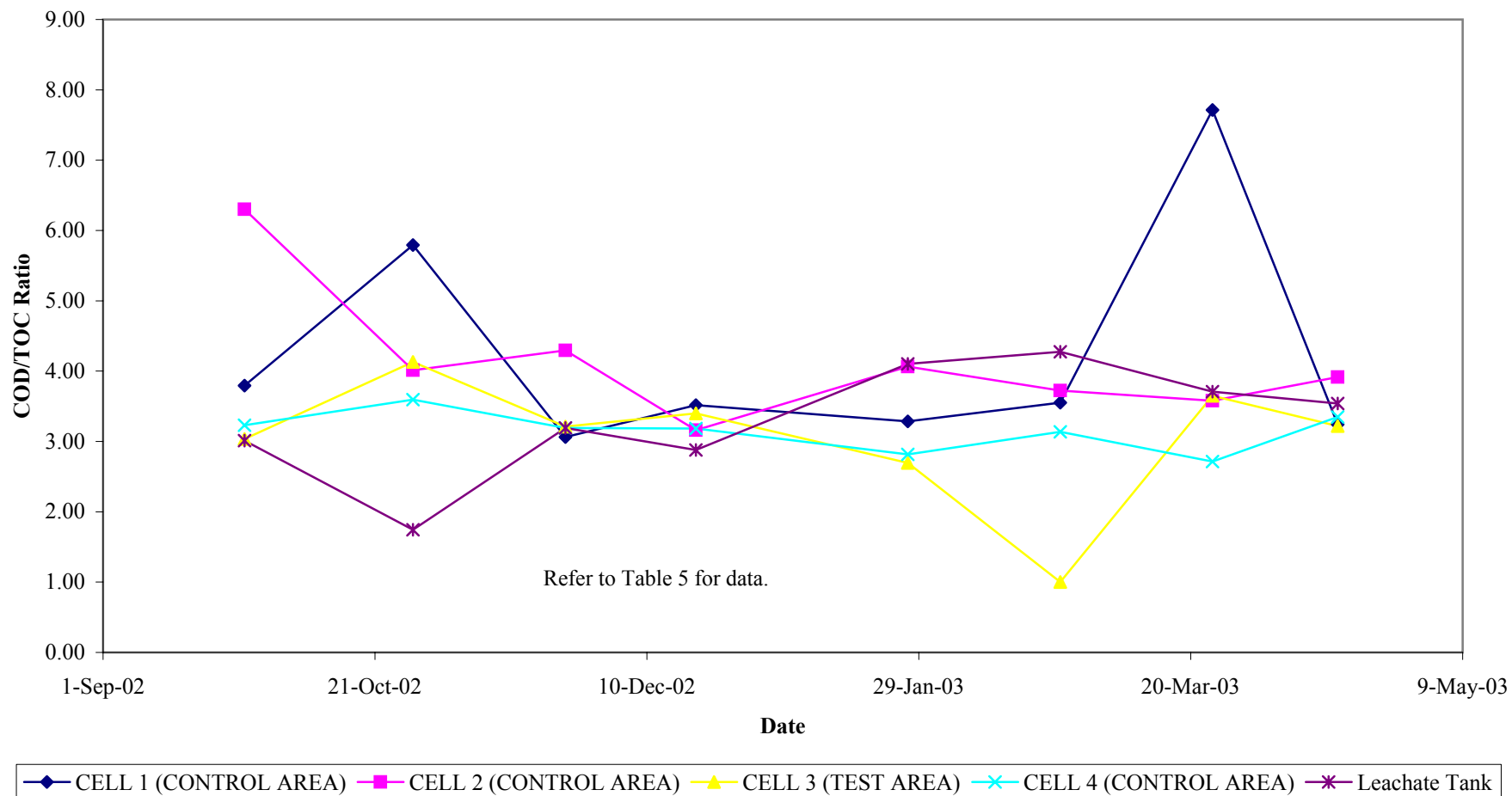


FIGURE 5
CHLORIDE CONCENTRATION
Project XL
King George County Landfill and Recycling Center
King George, Virginia

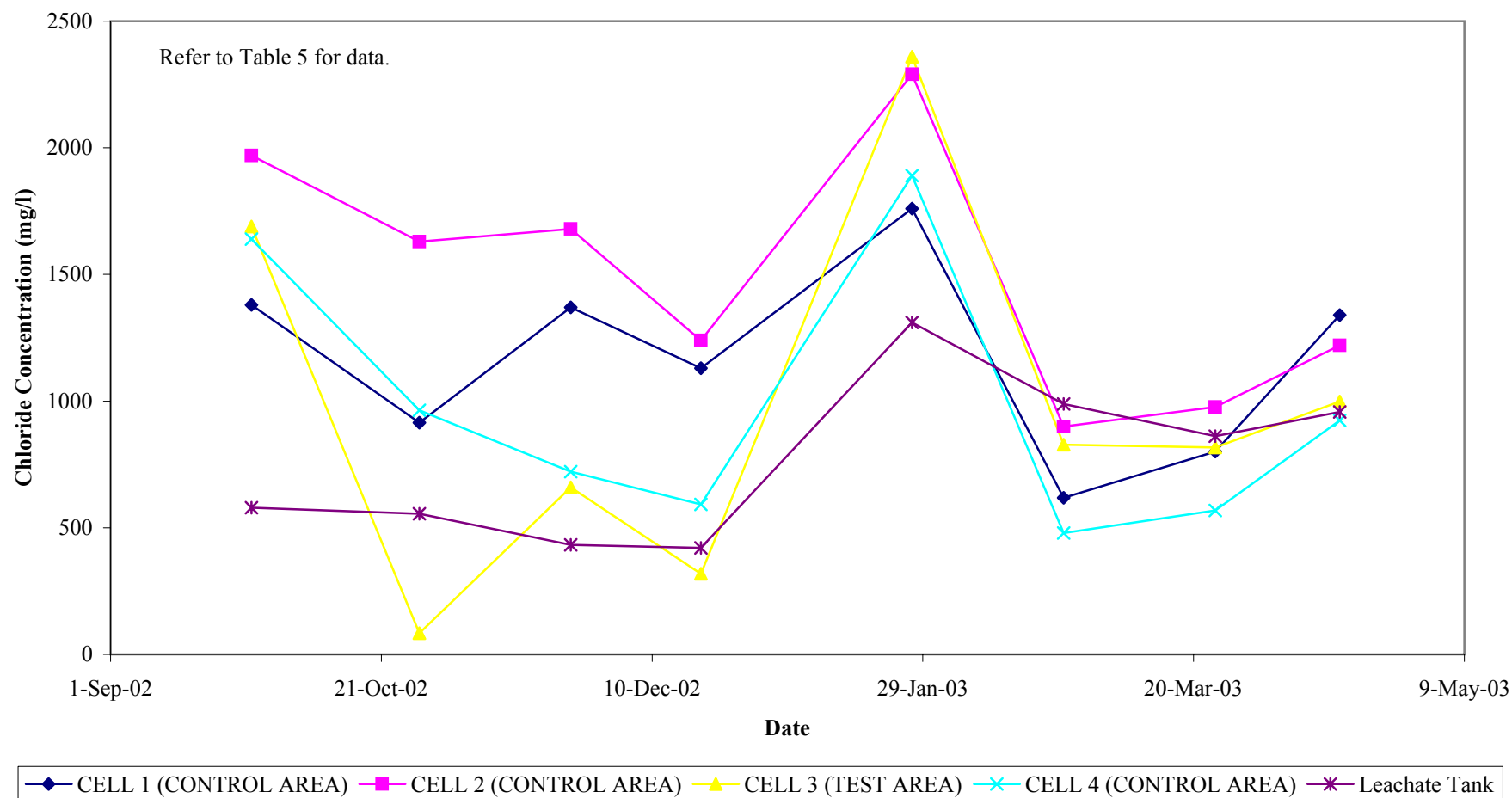


FIGURE 6
NITRATE NITROGEN CONCENTRATION
Project XL
King George County Landfill and Recycling Center
King George, Virginia

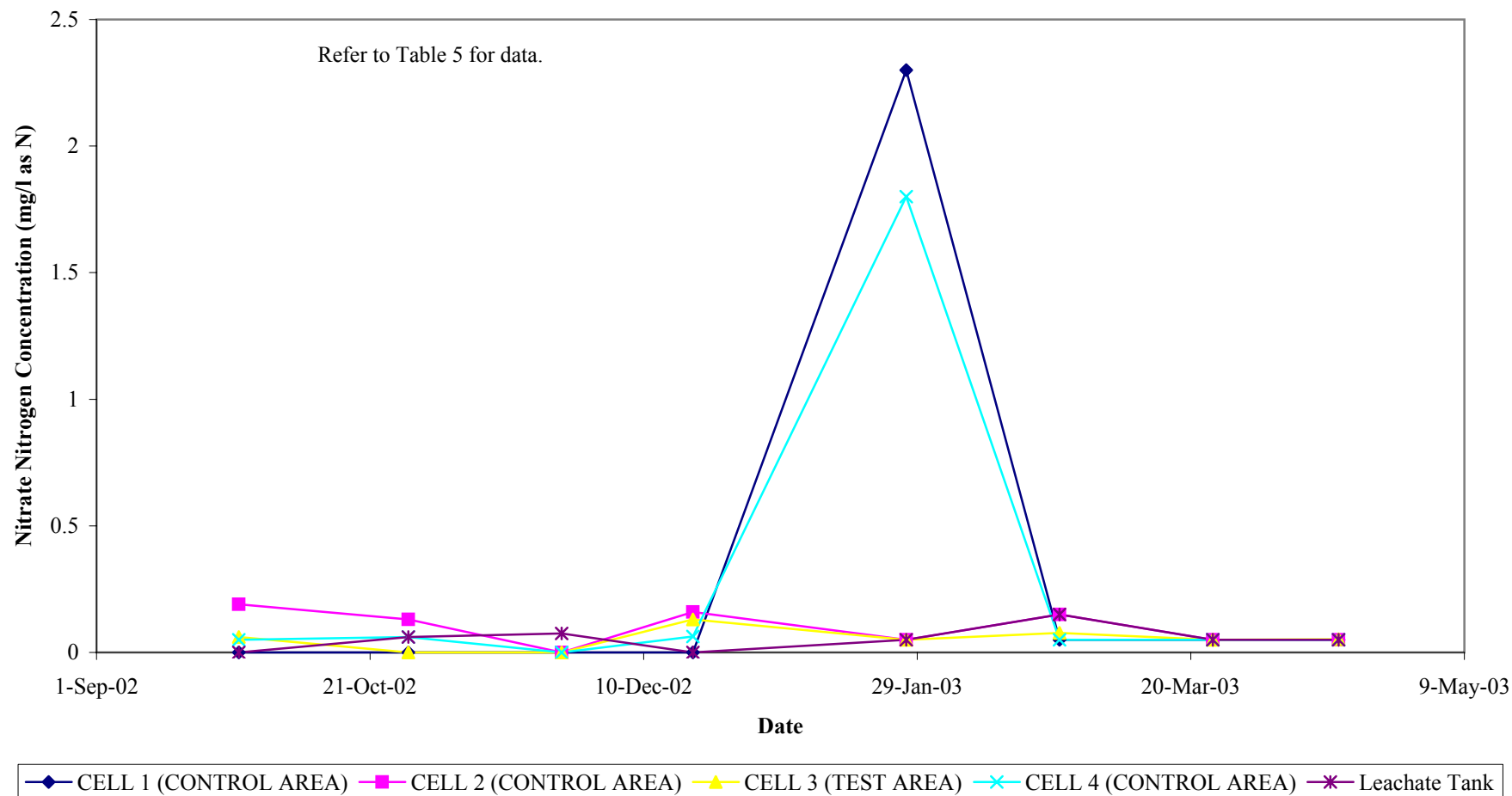


FIGURE 7
AMMONIA NITROGEN CONCENTRATION
Project XL
King George County Landfill and Recycling Center
King George, Virginia

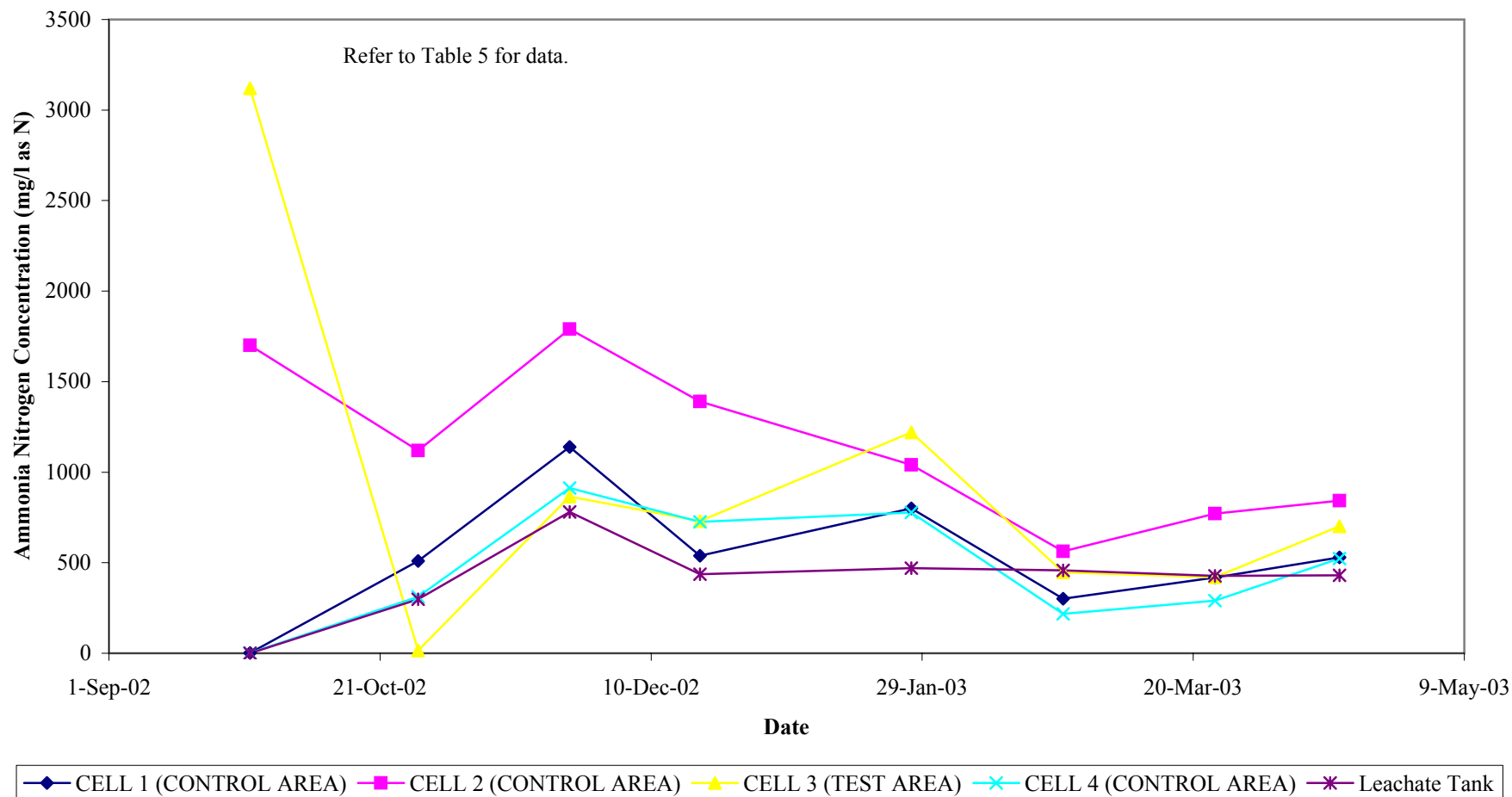


FIGURE 8
Variation in pH
Project XL
King George County Landfill and Recycling Center
King George, Virginia

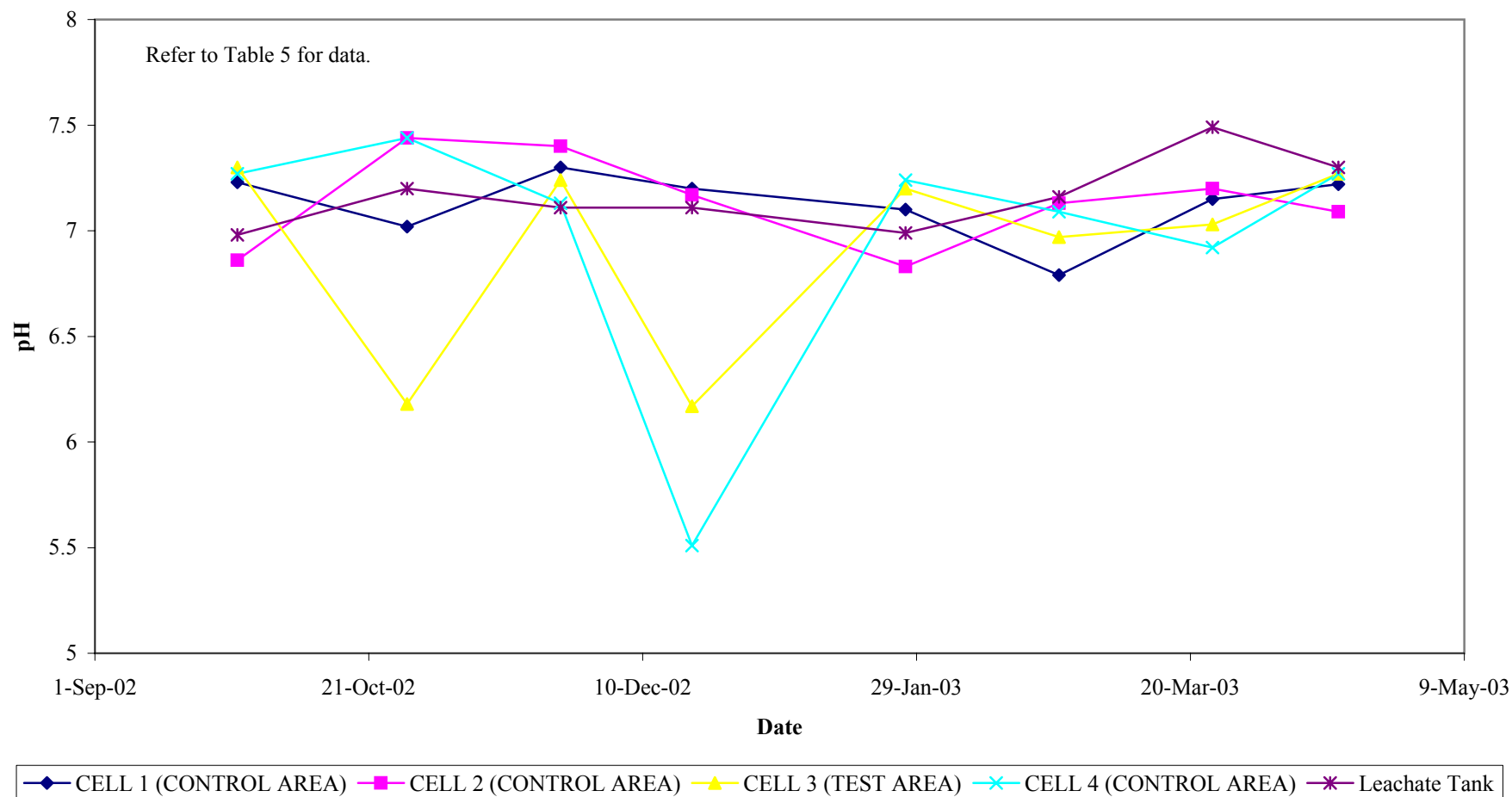


FIGURE 9
LANDFILL GAS QUANTITY DATA
Project XL
King George County Landfill and Recycling Center
King George, Virginia

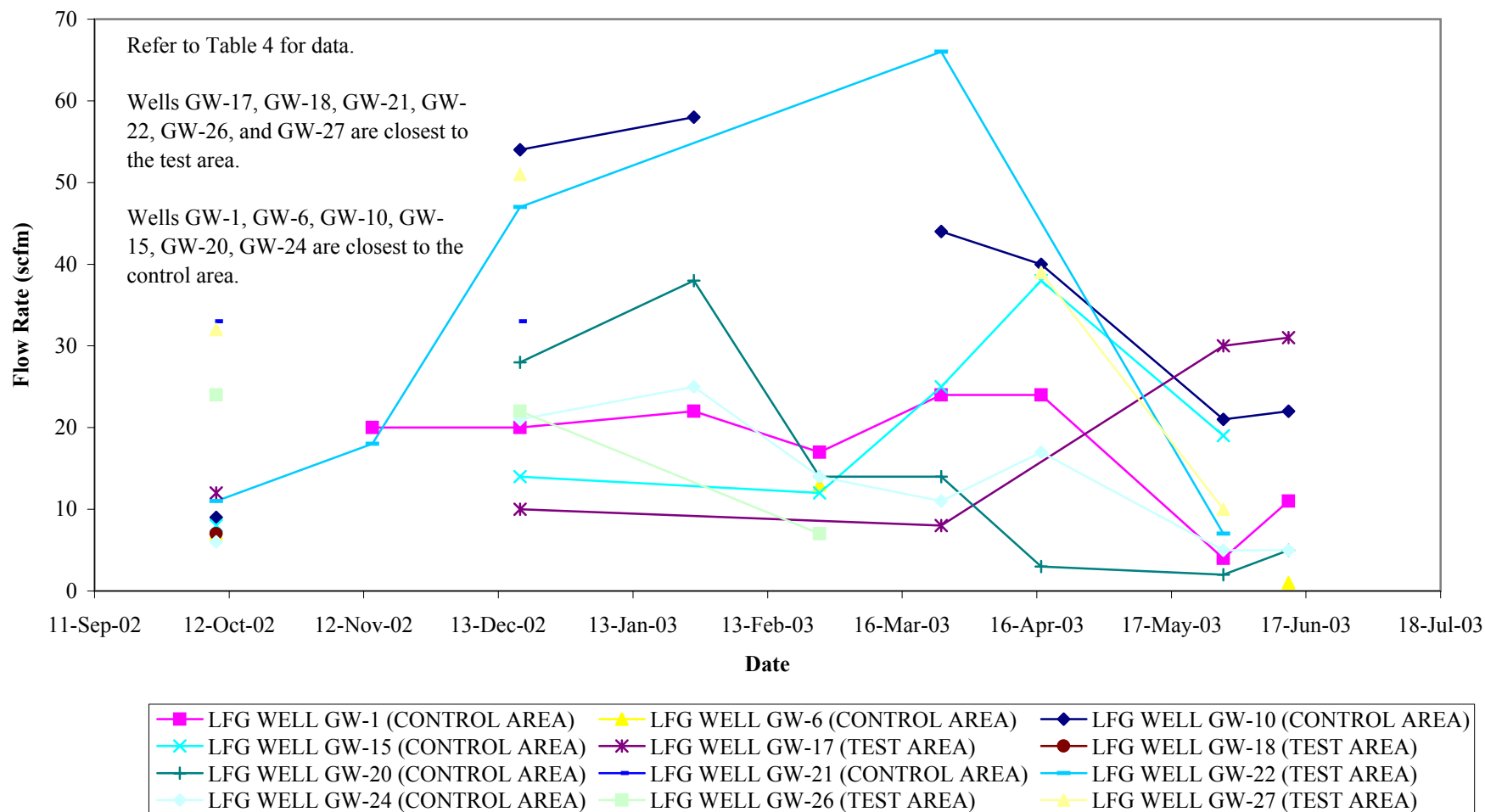


FIGURE 10
LANDFILL GAS QUALITY DATA - METHANE
Project XL
King George County Landfill and Recycling Center
King George, Virginia

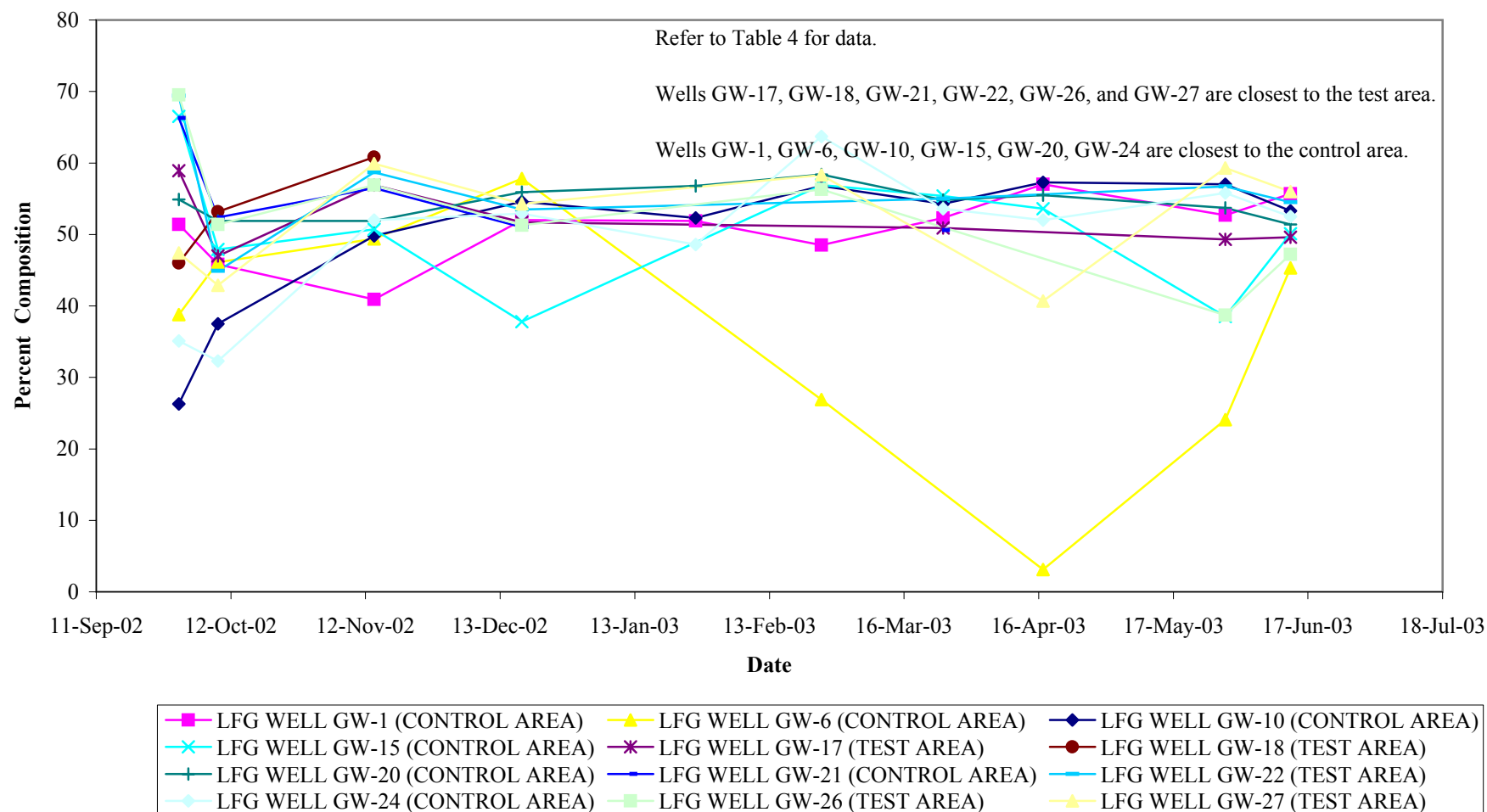
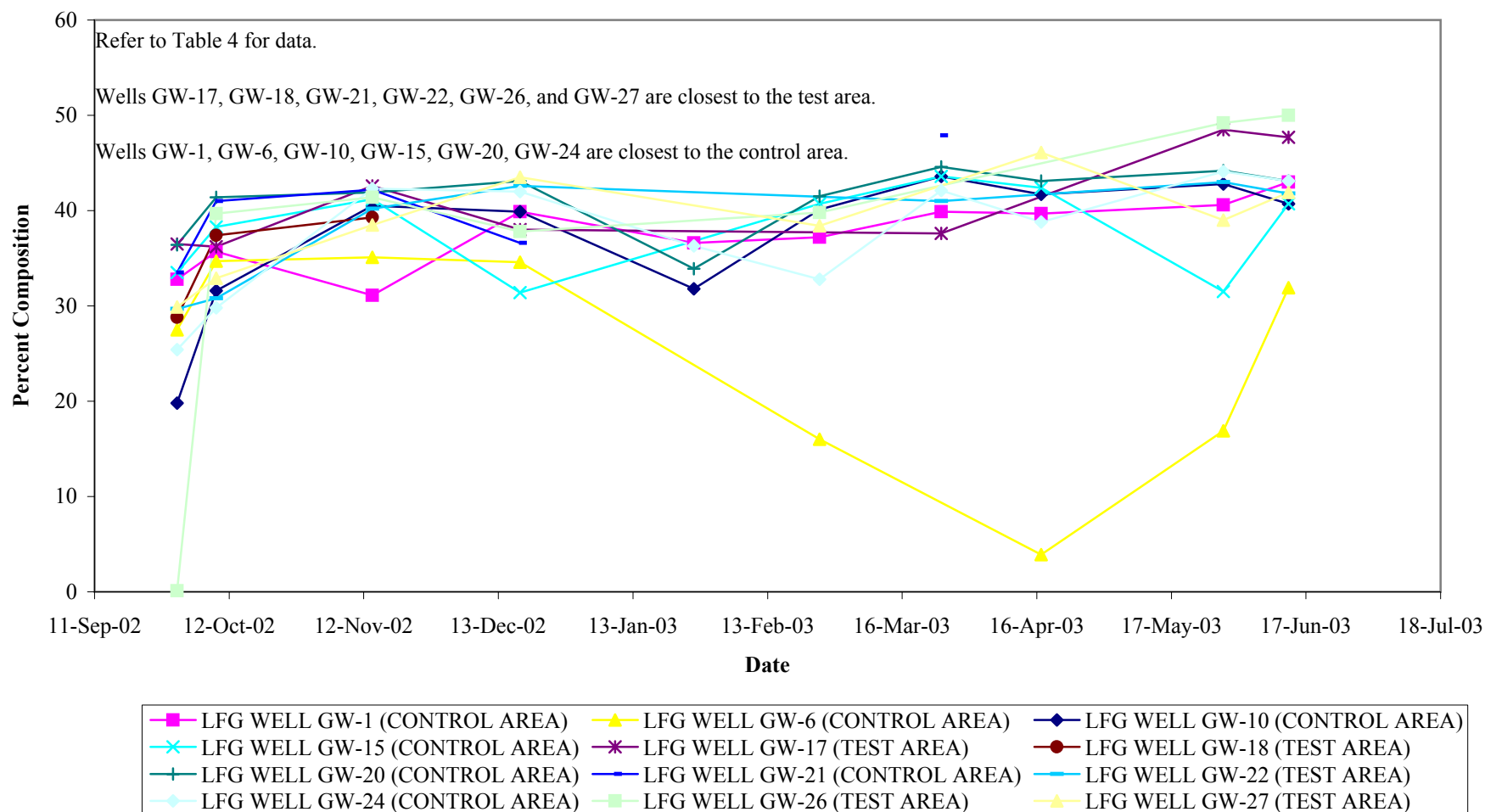
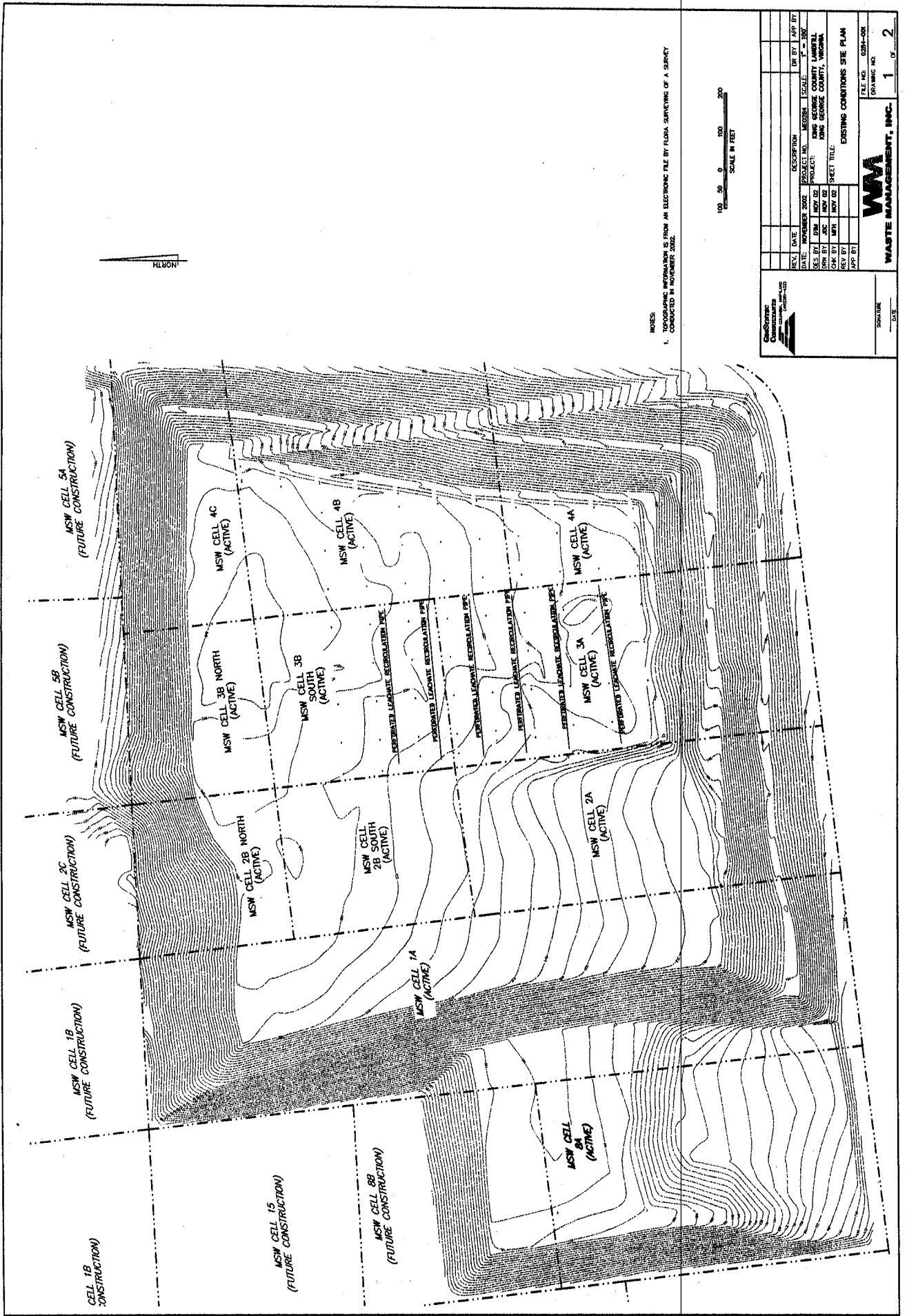


FIGURE 11
LANDFILL GAS QUALITY DATA - CARBON DIOXIDE
Project XL
King George County Landfill and Recycling Center
King George, Virginia






NOTES:
1. TOPOGRAPHIC INFORMATION IS FROM AN ELECTRONIC FILE BY FLORIDA SURVEYING OF A SURVEY CONDUCTED IN NOVEMBER 2002.



Geosyntec Consultants, Inc. 10000 W. 11th Avenue Suite 100 Boulder, CO 80501 303.440.1234		DESCRIPTION MSW CELL NO. 1A PROJECT MSW CELL NO. 1A SHEET TITLE EXISTING CONDITIONS SITE PLAN		DATE NOV 02	BY WMM	APP BY WMM
WASTE MANAGEMENT, INC.		FILE NO. 0284-001		DRAWING NO. 1 OF 2		

TOPOGRAPHIC INFORMATION IS FROM AN ELECTRONIC FILE BY FLORA SURVEYING OF A SURVEY CONDUCTED OR



		WASTE MANAGEMENT, INC.	
DATE: NOVEMBER 2002		FILE NO. 028-4001	
PROJECT NO. 1007		DRAWING NO. 1 OF 2	
PROJECT NAME KING GEORGE COUNTY LANDFILL KING GEORGE COUNTY, VIRGINIA		EXISTING CONDITIONS SITE PLAN	
SHEET TITLE:			
REV 01	NOV 02	JDC	NOV 02
REV 02	NOV 02	WPH	NOV 02
REV 03	NOV 02	WPH	NOV 02
REV 04	NOV 02	WPH	NOV 02
REV 05	NOV 02	WPH	NOV 02
REV 06	NOV 02	WPH	NOV 02
REV 07	NOV 02	WPH	NOV 02
REV 08	NOV 02	WPH	NOV 02
REV 09	NOV 02	WPH	NOV 02
REV 10	NOV 02	WPH	NOV 02
REV 11	NOV 02	WPH	NOV 02
REV 12	NOV 02	WPH	NOV 02
REV 13	NOV 02	WPH	NOV 02
REV 14	NOV 02	WPH	NOV 02
REV 15	NOV 02	WPH	NOV 02
REV 16	NOV 02	WPH	NOV 02
REV 17	NOV 02	WPH	NOV 02
REV 18	NOV 02	WPH	NOV 02
REV 19	NOV 02	WPH	NOV 02
REV 20	NOV 02	WPH	NOV 02
REV 21	NOV 02	WPH	NOV 02
REV 22	NOV 02	WPH	NOV 02
REV 23	NOV 02	WPH	NOV 02
REV 24	NOV 02	WPH	NOV 02
REV 25	NOV 02	WPH	NOV 02
REV 26	NOV 02	WPH	NOV 02
REV 27	NOV 02	WPH	NOV 02
REV 28	NOV 02	WPH	NOV 02
REV 29	NOV 02	WPH	NOV 02
REV 30	NOV 02	WPH	NOV 02
REV 31	NOV 02	WPH	NOV 02
REV 32	NOV 02	WPH	NOV 02
REV 33	NOV 02	WPH	NOV 02
REV 34	NOV 02	WPH	NOV 02
REV 35	NOV 02	WPH	NOV 02
REV 36	NOV 02	WPH	NOV 02
REV 37	NOV 02	WPH	NOV 02
REV 38	NOV 02	WPH	NOV 02
REV 39	NOV 02	WPH	NOV 02
REV 40	NOV 02	WPH	NOV 02
REV 41	NOV 02	WPH	NOV 02
REV 42	NOV 02	WPH	NOV 02
REV 43	NOV 02	WPH	NOV 02
REV 44	NOV 02	WPH	NOV 02
REV 45	NOV 02	WPH	NOV 02
REV 46	NOV 02	WPH	NOV 02
REV 47	NOV 02	WPH	NOV 02
REV 48	NOV 02	WPH	NOV 02
REV 49	NOV 02	WPH	NOV 02
REV 50	NOV 02	WPH	NOV 02
REV 51	NOV 02	WPH	NOV 02
REV 52	NOV 02	WPH	NOV 02
REV 53	NOV 02	WPH	NOV 02
REV 54	NOV 02	WPH	NOV 02
REV 55	NOV 02	WPH	NOV 02
REV 56	NOV 02	WPH	NOV 02
REV 57	NOV 02	WPH	NOV 02
REV 58	NOV 02	WPH	NOV 02
REV 59	NOV 02	WPH	NOV 02
REV 60	NOV 02	WPH	NOV 02
REV 61	NOV 02	WPH	NOV 02
REV 62	NOV 02	WPH	NOV 02
REV 63	NOV 02	WPH	NOV 02
REV 64	NOV 02	WPH	NOV 02
REV 65	NOV 02	WPH	NOV 02
REV 66	NOV 02	WPH	NOV 02
REV 67	NOV 02	WPH	NOV 02
REV 68	NOV 02	WPH	NOV 02
REV 69	NOV 02	WPH	NOV 02
REV 70	NOV 02	WPH	NOV 02
REV 71	NOV 02	WPH	NOV 02
REV 72	NOV 02	WPH	NOV 02
REV 73	NOV 02	WPH	NOV 02
REV 74	NOV 02	WPH	NOV 02
REV 75	NOV 02	WPH	NOV 02
REV 76	NOV 02	WPH	NOV 02
REV 77	NOV 02	WPH	NOV 02
REV 78	NOV 02	WPH	NOV 02
REV 79	NOV 02	WPH	NOV 02
REV 80	NOV 02	WPH	NOV 02
REV 81	NOV 02	WPH	NOV 02
REV 82	NOV 02	WPH	NOV 02
REV 83	NOV 02	WPH	NOV 02
REV 84	NOV 02	WPH	NOV 02
REV 85	NOV 02	WPH	NOV 02
REV 86	NOV 02	WPH	NOV 02
REV 87	NOV 02	WPH	NOV 02
REV 88	NOV 02	WPH	NOV 02
REV 89	NOV 02	WPH	NOV 02
REV 90	NOV 02	WPH	NOV 02
REV 91	NOV 02	WPH	NOV 02
REV 92	NOV 02	WPH	NOV 02
REV 93	NOV 02	WPH	NOV 02
REV 94	NOV 02	WPH	NOV 02
REV 95	NOV 02	WPH	NOV 02
REV 96	NOV 02	WPH	NOV 02
REV 97	NOV 02	WPH	NOV 02
REV 98	NOV 02	WPH	NOV 02
REV 99	NOV 02	WPH	NOV 02
REV 100	NOV 02	WPH	NOV 02

APPENDIX A - LEACHATE QUALITY TEST RESULTS
(available upon request)

Date: 02/18/2003
Time: 14:09:45

Waste Management, Inc.
New King George Landfill
FED
Alert Level Report

Page: 1
Rept: AN1128

Client Sample Id.	Laboratory Sample Id	Sample Date	Analyte Name	Um	Result	Alert Limit	RL
Cell 1 Leachate	A3079201	01/27/2003	Arsenic - Total	MG/L	0.043	0.010	0.020
Cell 1 Leachate	A3079201	01/27/2003	Benzene	UG/L	11	5.0	8
Cell 2 Leachate	A3079202	01/27/2003	Antimony - Total	MG/L	0.014	0.006	0.0060
Cell 2 Leachate	A3079202	01/27/2003	Arsenic - Total	MG/L	0.033	0.010	0.020
Cell 2 Leachate	A3079202	01/27/2003	Benzene	UG/L	15	5.0	10
Cell 2 Leachate	A3079202	01/27/2003	Nickel - Total	MG/L	0.28	0.100	0.0040
Cell 3 Leachate	A3079203	01/27/2003	Antimony - Total	MG/L	0.0095	0.006	0.0060
Cell 3 Leachate	A3079203	01/27/2003	Arsenic - Total	MG/L	0.038	0.010	0.020
Cell 3 Leachate	A3079203	01/27/2003	Nickel - Total	MG/L	0.26	0.100	0.0040
Cell 4 Leachate	A3079204	01/27/2003	Antimony - Total	MG/L	0.0063	0.006	0.0060
Cell 4 Leachate	A3079204	01/27/2003	Arsenic - Total	MG/L	0.023	0.010	0.020
Cell 4 Leachate	A3079204	01/27/2003	Nickel - Total	MG/L	0.12	0.100	0.0040
Cell 8 Leachate	A3079205	01/27/2003	Antimony - Total	MG/L	0.0083	0.006	0.0060
Cell 8 Leachate	A3079205	01/27/2003	Lead - Total	MG/L	0.039	0.015	0.0050
Leachate Tank	A3079206	01/27/2003	Antimony - Total	MG/L	0.010	0.006	0.0060
Leachate Tank	A3079206	01/27/2003	Arsenic - Total	MG/L	0.027	0.010	0.020

Date: 03/12/2003

Time: 11:23:07

Waste Management, Inc.

New King George Landfill

FED

Alert Level Report

Page: 1

Rept: AN1128

Client Sample Id.	Laboratory Sample Id	Sample Date	Analyte Name	Um	Result	Alert Limit	RL
Cell 1 Leachate	A3172701	02/24/2003	Antimony - Total	MG/L	0.011	0.006	0.0060
Cell 1 Leachate	A3172701	02/24/2003	Arsenic - Total	MG/L	0.027	0.010	0.020
Cell 2 Leachate	A3172702	02/24/2003	Antimony - Total	MG/L	0.0090	0.006	0.0060
Cell 2 Leachate	A3172702	02/24/2003	Arsenic - Total	MG/L	0.021	0.010	0.020
Cell 2 Leachate	A3172702	02/24/2003	Nickel - Total	MG/L	0.10	0.100	0.0040
Cell 3 Leachate	A3172703	02/24/2003	Antimony - Total	MG/L	0.011	0.006	0.0060
Cell 4 Leachate	A3172704	02/24/2003	Antimony - Total	MG/L	0.0087	0.006	0.0060
Cell 4 Leachate	A3172704	02/24/2003	Benzene	UG/L	10	5.0	4
Cell 4 Leachate	A3172704	02/24/2003	Vinyl chloride	UG/L	9	2.0	4
Cell 8 Leachate	A3172705	02/24/2003	Antimony - Total	MG/L	0.0070	0.006	0.0060
Cell 8 Leachate	A3172705	02/24/2003	Benzene	UG/L	18	5.0	4
Cell 8 Leachate	A3172705	02/24/2003	Chloromethane	UG/L	11	0.0	10
Cell 8 Leachate	A3172705	02/24/2003	Tetrachloroethene	UG/L	16	5.0	4
Cell 8 Leachate	A3172705	02/24/2003	Trichloroethene	UG/L	12	5.0	3
Cell 8 Leachate	A3172705	02/24/2003	Vinyl chloride	UG/L	13	2.0	4
Leachate Tank	A3172707	02/24/2003	Antimony - Total	MG/L	0.0096	0.006	0.0060
Leachate Tank	A3172707	02/24/2003	Arsenic - Total	MG/L	0.020	0.010	0.020

Date: 01/08/2003
Time: 15:55:45

Waste Management, Inc.
New King George Landfill
FED
Alert Level Report

Page: 1
Rept: AN1126

Client Sample Id.	Laboratory Sample Id	Sample Date	Analyte Name	Um	Result	Alert Limit	RL
Cell 1 Leachate	A2C68301	12/19/2002	Antimony - Total	MG/L	0.0087	0.006	0.0060
Cell 1 Leachate	A2C68301	12/19/2002	Arsenic - Total	MG/L	0.036	0.010	0.020
Cell 1 Leachate	A2C68301	12/19/2002	Benzene	UG/L	16	5.0	3
Cell 2 Leachate	A2C68302	12/19/2002	Arsenic - Total	MG/L	0.020	0.010	0.020
Cell 2 Leachate	A2C68302	12/19/2002	Benzene	UG/L	9	5.0	3
Cell 2 Leachate	A2C68302	12/19/2002	Nickel - Total	MG/L	0.18	0.100	0.0040
Cell 3 Leachate	A2C68303	12/19/2002	Antimony - Total	MG/L	0.0099	0.006	0.0060
Cell 3 Leachate	A2C68303	12/19/2002	Benzene	UG/L	15	5.0	3
Cell 3 Leachate	A2C68303	12/19/2002	Tetrachloroethene	UG/L	9	5.0	3
Cell 3 Leachate	A2C68303	12/19/2002	Trichloroethene	UG/L	8	5.0	3
Cell 3 Leachate	A2C68303	12/19/2002	Vinyl chloride	UG/L	10	2.0	2
Cell 4 Leachate	A2C68304	12/19/2002	Antimony - Total	MG/L	0.0069	0.006	0.0060
Cell 4 Leachate	A2C68304	12/19/2002	Benzene	UG/L	6	5.0	3
Cell 4 Leachate dl	A2C68304DL	12/19/2002	Benzene	UG/L	6	5.0	3

Date: 10/17/2002
Time: 12:38:24

Waste Management, Inc.
New King George Landfill
FED
Alert Level Report

Page: 1
Rept: AN1128

Laboratory		Sample		Unit	Result	Alert	
Client Sample Id.	Sample Id	Date	Analyte Name			Limit	RL
LEACHATE #1	A2962604	09/27/2002	Arsenic - Total	MG/L	0.037	0.010	0.020
LEACHATE #2	A2962601	09/27/2002	Antimony - Total	MG/L	0.012	0.006	0.0060
LEACHATE #2	A2962601	09/27/2002	Arsenic - Total	MG/L	0.038	0.010	0.020
LEACHATE #2	A2962601	09/27/2002	Benzene	UG/L	18	5.0	6
LEACHATE #2	A2962601	09/27/2002	Nickel - Total	MG/L	0.39	0.100	0.0040
LEACHATE #3	A2962602	09/27/2002	Arsenic - Total	MG/L	0.034	0.010	0.020
LEACHATE #3	A2962602	09/27/2002	Nickel - Total	MG/L	0.38	0.100	0.0040
LEACHATE #4	A2962603	09/27/2002	Antimony - Total	MG/L	0.0080	0.006	0.0060
LEACHATE #4	A2962603	09/27/2002	Arsenic - Total	MG/L	0.026	0.010	0.020
LEACHATE #4	A2962603	09/27/2002	Nickel - Total	MG/L	0.22	0.100	0.0040
LEACHATE #8	A2962605	09/27/2002	Benzene	UG/L	15	5.0	3
LEACHATE #8	A2962605	09/27/2002	Chloromethane	UG/L	4	0.0	10
LEACHATE #8	A2962605	09/27/2002	Lead - Total	MG/L	0.031	0.015	0.0050
LEACHATE #8	A2962605	09/27/2002	Tetrachloroethene	UG/L	15	5.0	2
LEACHATE #8	A2962605	09/27/2002	Trichloroethene	UG/L	13	5.0	3
LEACHATE #8	A2962605	09/27/2002	Vinyl chloride	UG/L	7	2.0	2
LEACHATE TANK	A2962607	09/27/2002	Arsenic - Total	MG/L	0.026	0.010	0.020

Date: 12/13/2002
Time: 09:03:01

Waste Management, Inc.
New King George Landfill
FED
Alert Level Report

Page: 1
Rept: AN1128

Client Sample Id.	Laboratory Sample Id	Sample Date	Analyte Name	Um	Result	Alert Limit	RL
Cell 1 Leachate	A2A70301	10/28/2002	Arsenic - Total	MG/L	0.031	0.010	0.020
Cell 1 Leachate	A2A70301	10/28/2002	Benzene	UG/L	16	5.0	3
Cell 1 Leachate	A2A70301	10/28/2002	Vinyl chloride	UG/L	3	2.0	2
Cell 2 Leachate	A2A70302	10/28/2002	Antimony - Total	MG/L	0.014	0.006	0.0060
Cell 2 Leachate	A2A70302	10/28/2002	Arsenic - Total	MG/L	0.035	0.010	0.020
Cell 2 Leachate	A2A70302	10/28/2002	Benzene	UG/L	9	5.0	3
Cell 2 Leachate	A2A70302	10/28/2002	Nickel - Total	MG/L	0.26	0.100	0.0040
Cell 3 Leachate	A2A70303	10/28/2002	Benzene	UG/L	18	5.0	6
Cell 3 Leachate	A2A70303	10/28/2002	Tetrachloroethene	UG/L	11	5.0	8
Cell 3 Leachate	A2A70303	10/28/2002	Vinyl chloride	UG/L	13	2.0	2
Cell 4 Leachate	A2A70304	10/28/2002	Antimony - Total	MG/L	0.0076	0.006	0.0060
Cell 4 Leachate	A2A70304	10/28/2002	Arsenic - Total	MG/L	0.022	0.010	0.020
Cell 4 Leachate	A2A70304	10/28/2002	Benzene	UG/L	5	5.0	3
Cell 4 Leachate	A2A70304	10/28/2002	Nickel - Total	MG/L	0.12	0.100	0.0040
Cell 8 Leachate	A2A70305	10/28/2002	Benzene	UG/L	19	5.0	6
Cell 8 Leachate	A2A70305	10/28/2002	Tetrachloroethene	UG/L	13	5.0	8
Cell 8 Leachate	A2A70305	10/28/2002	Vinyl chloride	UG/L	15	2.0	2
Leachate Tank	A2A70307	10/28/2002	Antimony - Total	MG/L	0.0078	0.006	0.0060
Leachate Tank	A2A70307	10/28/2002	Arsenic - Total	MG/L	0.020	0.010	0.020

Date: 12/17/2002
Time: 15:32:09

Waste Management, Inc.
New King George Landfill
FED
Alert Level Report

Page: 1
Rept: AN1128

Client Sample Id.	Laboratory Sample Id	Sample Date	Analyte Name	Um	Result	Alert Limit	RL
Cell 1 Leachate	A2B77601	11/25/2002	Antimony - Total	MG/L	0.0074	0.006	0.0060
Cell 1 Leachate	A2B77601	11/25/2002	Arsenic - Total	MG/L	0.034	0.010	0.020
Cell 1 Leachate	A2B77601	11/25/2002	Benzene	UG/L	14	5.0	3
Cell 1 Leachate	A2B77601	11/25/2002	Vinyl chloride	UG/L	2	2.0	2
Cell 2 Leachate	A2B77602	11/25/2002	Antimony - Total	MG/L	0.013	0.006	0.0060
Cell 2 Leachate	A2B77602	11/25/2002	Arsenic - Total	MG/L	0.028	0.010	0.020
Cell 2 Leachate	A2B77602	11/25/2002	Benzene	UG/L	16	5.0	3
Cell 2 Leachate	A2B77602	11/25/2002	Nickel - Total	MG/L	0.19	0.100	0.0040
Cell 4 Leachate	A2B77604	11/25/2002	Vinyl chloride	UG/L	2	2.0	2
Cell 8 Leachate	A2B77605	11/25/2002	Benzene	UG/L	28	5.0	4
Cell 8 Leachate	A2B77605	11/25/2002	Tetrachloroethene	UG/L	14	5.0	4
Cell 8 Leachate	A2B77605	11/25/2002	Vinyl chloride	UG/L	10	2.0	4

APPENDIX B - DAILY LIQUID APPLICATION LOG
(available upon request)

Daily Liquid Application Log
King George Landfill

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
01/04/03	5	first load off the ground do to overflow	truck 24	81200.0	27220.0	53980.0	6472.4
01/04/03	5			80620.0	27220.0	53400.0	6402.9
01/04/03						0.0	0.0
01/04/03						0.0	0.0
01/04/03						0.0	0.0
01/04/03						0.0	0.0
01/04/03						0.0	0.0
01/04/03						0.0	0.0
01/04/03						0.0	0.0
01/04/03						0.0	0.0
01/04/03						0.0	0.0
01/04/03						0.0	0.0
01/04/03						0.0	0.0
01/04/03						0.0	0.0
TOTALS				161,820.0	54,440.0	107,380.0	12,875.3

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1		
	2	25.7	25.7

Daily Liquid Application Log King George Landfill

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
01/21/03	6			79980.0	26800.0	53180.0	6376.5
01/21/03	6			92280.0	28080.0	64200.0	7697.8
01/21/03				81040.0	26800.0	54240.0	6503.6
01/21/03				93220.0	28080.0	65140.0	7810.6
01/21/03				79480.0	26800.0	52680.0	6316.5
01/21/03				91580.0	28080.0	63500.0	7613.9
01/21/03				81340.0	26800.0	54540.0	6539.6
01/21/03				92460.0	28080.0	64380.0	7719.4
01/21/03				81960.0	26800.0	55160.0	6613.9
01/21/03				92060.0	28080.0	63980.0	7671.5
01/21/03				81700.0	26800.0	54900.0	6582.7
01/21/03				90620.0	28080.0	62540.0	7498.8
TOTALS				1,037,720.0	329,280.0	708,440.0	84,944.8

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1	19.9	
	2		

**Daily Liquid Application Log
King George Landfill**

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
01/24/03				80020.0	26700.0	53320.0	6393.3
01/24/03				92580.0	27980.0	64600.0	7745.8
01/24/03				80180.0	26700.0	53480.0	6412.5
01/24/03				81800.0	27980.0	53820.0	6453.2
01/24/03				91280.0	27980.0	63300.0	7589.9
01/24/03				82260.0	26700.0	55560.0	6661.9
01/24/03				90880.0	27980.0	62900.0	7542.0
01/24/03				82540.0	26700.0	55840.0	6695.4
01/24/03				94840.0	27980.0	66860.0	8016.8
01/24/03				81220.0	26700.0	54520.0	6537.2
01/24/03				90580.0	27980.0	62600.0	7506.0
01/24/03				86520.0	26700.0	59820.0	7172.7
01/24/03						0.0	0.0
01/24/03						0.0	0.0
01/24/03						0.0	0.0
01/24/03						0.0	0.0
01/24/03						0.0	0.0
01/24/03						0.0	0.0
01/24/03						0.0	0.0
TOTALS				1,034,700.0	328,080.0	706,620.0	84,726.6

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1	20.6	
	2		

**Daily Liquid Application Log
King George Landfill**

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
01/25/03				80820.0	26800.0	54020.0	6477.2
01/25/03				90260.0	28300.0	61960.0	7429.3
01/25/03				80460.0	26800.0	53660.0	6434.1
01/25/03				87780.0	28300.0	59480.0	7131.9
01/25/03				83820.0	26800.0	57020.0	6836.9
01/25/03				90120.0	28300.0	61820.0	7412.5
01/25/03				83700.0	26800.0	56900.0	6822.5
01/25/03				98860.0	28300.0	70560.0	8460.4
01/25/03				85580.0	26800.0	58780.0	7048.0
01/25/03				90460.0	28300.0	62160.0	7453.2
01/25/03				82440.0	26800.0	55640.0	6671.5
01/25/03				92600.0	28300.0	64300.0	7709.8
01/25/03				82500.0	26800.0	55700.0	6678.7
01/25/03				89120.0	28300.0	60820.0	7292.6
01/25/03						0.0	0.0
01/25/03						0.0	0.0
01/25/03						0.0	0.0
TOTALS				1,218,520.0	385,700.0	832,820.0	99,858.5

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1	20.2	
	2		

Daily Liquid Application Log King George Landfill

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
01/26/03	6			83500.0	26860.0	56640.0	6791.4
01/26/03				90900.0	28420.0	62480.0	7491.6
01/26/03				82220.0	26860.0	55360.0	6637.9
01/26/03				90860.0	28420.0	62440.0	7486.8
01/26/03				82740.0	26860.0	55880.0	6700.2
01/26/03				90080.0	28420.0	61660.0	7393.3
01/26/03				81720.0	26860.0	54860.0	6577.9
01/26/03				86920.0	28420.0	58500.0	7014.4
01/26/03				83060.0	26860.0	56200.0	6738.6
01/26/03				92680.0	28420.0	64260.0	7705.0
01/26/03				83320.0	26860.0	56460.0	6769.8
01/26/03				73140.0	28420.0	44720.0	5362.1
TOTALS				1,021,140.0	331,680.0	689,460.0	82,669.1

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1	17.1	
	2		

Daily Liquid Application Log
King George Landfill
Monthly Summary

Date	Net Wt	Gallons
01/01/03	0.0	0.0
01/02/03	0.0	0.0
01/03/03	0.0	0.0
01/04/03	107,380.0	12,875.3
01/05/03	0.0	0.0
01/06/03	0.0	0.0
01/07/03	0.0	0.0
01/08/03	0.0	0.0
01/09/03	0.0	0.0
01/10/03	0.0	0.0
01/11/03	0.0	0.0
01/12/03	0.0	0.0
01/13/03	0.0	0.0
01/14/03	0.0	0.0
01/15/03	0.0	0.0
01/16/03	0.0	0.0
01/17/03	0.0	0.0
01/18/03	0.0	0.0
01/19/03	0.0	0.0
01/20/03	0.0	0.0
01/21/03	708,440.0	84,944.8
01/22/03	0.0	0.0
01/23/03	0.0	0.0
01/24/03	706,620.0	84,726.6
01/25/03	832,820.0	99,858.5
01/26/03	689,460.0	82,669.1
01/27/03	0.0	0.0
01/28/03	0.0	0.0
01/29/03	0.0	0.0
01/30/03	0.0	0.0
01/31/03	0.0	0.0

Totals	3,044,720.0	365,074.3
---------------	--------------------	------------------

Daily Liquid Application Log King George Landfill

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
02/20/03	6			78920.0	26900.0	52020.0	6237.4
02/20/03				79360.0	26900.0	52460.0	6290.2
02/20/03				78640.0	26900.0	51740.0	6203.8
02/20/03				79100.0	28680.0	50420.0	6045.6
02/20/03				79560.0	26900.0	52660.0	6314.1
02/20/03				92760.0	28680.0	64080.0	7683.5
02/20/03				82160.0	26900.0	55260.0	6625.9
02/20/03				92260.0	28680.0	63580.0	7623.5
02/20/03				82120.0	26900.0	55220.0	6621.1
02/20/03				93540.0	28680.0	64860.0	7777.0
02/20/03				93220.0	26900.0	66320.0	7952.0
TOTALS				931,640.0	303,020.0	628,620.0	75,374.1

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1	19.9	
	2		

**Daily Liquid Application Log
King George Landfill**

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
02/24/03				91160.0	28080.0	63080.0	7563.5
02/24/03				83620.0	26800.0	56820.0	6812.9
02/24/03				90140.0	28080.0	62060.0	7441.2
02/24/03				82980.0	28080.0	54900.0	6582.7
02/24/03				89780.0	28080.0	61700.0	7398.1
02/24/03						0.0	0.0
02/24/03						0.0	0.0
02/24/03						0.0	0.0
02/24/03						0.0	0.0
02/24/03						0.0	0.0
02/24/03						0.0	0.0
02/24/03						0.0	0.0
02/24/03						0.0	0.0
02/24/03						0.0	0.0
02/24/03						0.0	0.0
TOTALS				437,680.0	139,120.0	298,560.0	35,798.6

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1	19.9	
	2		

Daily Liquid Application Log
King George Landfill
Monthly Summary

Date	Net Wt	Gallons
02/01/03	0.0	0.0
02/02/03	0.0	0.0
02/03/03	0.0	0.0
02/04/03	0.0	0.0
02/05/03	0.0	0.0
02/06/03	0.0	0.0
02/07/03	0.0	0.0
02/08/03	0.0	0.0
02/09/03	0.0	0.0
02/10/03	0.0	0.0
02/11/03	0.0	0.0
02/12/03	0.0	0.0
02/13/03	0.0	0.0
02/14/03	0.0	0.0
02/15/03	0.0	0.0
02/16/03	0.0	0.0
02/17/03	0.0	0.0
02/18/03	0.0	0.0
02/19/03	0.0	0.0
02/20/03	628,620.0	75,374.1
02/21/03	0.0	0.0
02/22/03	0.0	0.0
02/23/03	0.0	0.0
02/24/03	298,560.0	35,798.6
02/25/03	0.0	0.0
02/26/03	0.0	0.0
02/27/03	0.0	0.0
02/28/03	0.0	0.0
03/01/03	0.0	0.0
03/02/03	0.0	0.0
03/03/03	0.0	0.0

Totals

927,180.0

111,172.7

Daily Liquid Application Log King George Landfill

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
03/03/03	3	truck 4		85220.0	28040.0	57180.0	6856.1
03/03/03	6	truck 24		81800.0	26920.0	54880.0	6580.3
03/03/03	3	truck 4		92040.0	28040.0	64000.0	7673.9
03/03/03	6	24		85020.0	26920.0	58100.0	6966.4
03/03/03	3	4		91140.0	28040.0	63100.0	7565.9
03/03/03	6	24		83440.0	26920.0	56520.0	6777.0
03/03/03	6	4		86720.0	28040.0	58680.0	7036.0
03/03/03	6	24		84100.0	26920.0	57180.0	6856.1
03/03/03	6	4		91000.0	28040.0	62960.0	7549.2
03/03/03	6	24		85060.0	26920.0	58140.0	6971.2
03/03/03	6	4		88760.0	28040.0	60720.0	7280.6
03/03/03	6	24		84160.0	26920.0	57240.0	6863.3
3/3/2003	6	4		89880.0	28040.0	61840.0	7414.9
3/3/2003	6	24		84260.0	26920.0	57340.0	6875.3

TOTALS 1,212,600.0 329,760.0 827,880.0 99,266.2

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1	6.9	
	2		

**Daily Liquid Application Log
King George Landfill**

Date	Trench #	Liquid Description truck	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
03/04/03	1	24		85980.0	28040.0	57940.0	6947.2
03/04/03	2	4		93840.0	26920.0	66920.0	8024.0
03/04/03	3	24		88120.0	28040.0	60080.0	7203.8
03/04/03	1	4		84160.0	26920.0	57240.0	6863.3
03/04/03	2	24		86440.0	28040.0	58400.0	7002.4
03/04/03	3	4		90900.0	26920.0	63980.0	7671.5
03/04/03	1	24		87480.0	28040.0	59440.0	7127.1
03/04/03	2	4		91200.0	26920.0	64280.0	7707.4
03/04/03	3	24		82780.0	28040.0	54740.0	6563.5
03/04/03	1	4		91860.0	26920.0	64940.0	7786.6
03/04/03	2	24		88200.0	28040.0	60160.0	7213.4
03/04/03	3	4		90460.0	26920.0	63540.0	7618.7
30403	4	4		90100.0	26920.0	63180.0	7575.5

TOTALS 1,151,520.0 356,680.0 794,840.0 95,304.6

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1		
	2		

Daily Liquid Application Log King George Landfill

Date	Trench #	Liquid Description truck	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
03/05/03	4	4		88540.0	28340.0	60200.0	7218.2
03/05/03	4	4		91260.0	28340.0	62920.0	7544.4
03/05/03	4	4		89400.0	28340.0	61060.0	7321.3
03/05/03	4	4		90660.0	28340.0	62320.0	7472.4
03/05/03	1	4		88080.0	28340.0	59740.0	7163.1
03/05/03	1	4		97840.0	28340.0	69500.0	8333.3
03/05/03	1	4		89520.0	28340.0	61180.0	7335.7
03/05/03	1	4		87720.0	28340.0	59380.0	7119.9
03/05/03						0.0	0.0
03/05/03						0.0	0.0
03/05/03						0.0	0.0
03/05/03						0.0	0.0
TOTALS				723,020.0	226,720.0	496,300.0	59,508.4

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1		
	2		

Daily Liquid Application Log King George Landfill

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
03/10/03	2			84560.0	28560.0	56000.0	6714.6
03/10/03	2			88960.0	28560.0	60400.0	7242.2
	2			93820.0	28560.0	65260.0	7824.9
03/10/03	2			92780.0	28560.0	64220.0	7700.2
03/10/03	2			87440.0	28560.0	58880.0	7060.0
03/10/03	2			85920.0	28560.0	57360.0	6877.7
03/10/03	2			91060.0	28560.0	62500.0	7494.0
03/10/03	2			88940.0	28560.0	60380.0	7239.8
03/10/03	2					0.0	0.0
03/10/03						0.0	0.0
03/10/03						0.0	0.0
03/10/03						0.0	0.0
TOTALS				713,480.0	228,480.0	485,000.0	58,153.5

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1		
	2		

Daily Liquid Application Log King George Landfill

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
03/11/03	4			90740.0	28660.0	62080.0	7443.6
03/11/03	4			89160.0	28660.0	60500.0	7254.2
03/11/03	4			88580.0	28660.0	59920.0	7184.7
03/11/03	4			90760.0	28660.0	62100.0	7446.0
03/11/03	4			91660.0	28660.0	63000.0	7554.0
03/11/03	4			89060.0	28660.0	60400.0	7242.2
03/11/03	4			89700.0	28660.0	61040.0	7318.9
03/11/03	4					0.0	0.0
03/11/03						0.0	0.0
03/11/03						0.0	0.0
03/11/03						0.0	0.0
03/11/03						0.0	0.0
TOTALS				629,660.0	200,620.0	429,040.0	51,443.6

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1		
	2		

**Daily Liquid Application Log
King George Landfill**

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
03/12/03						0.0	0.0
03/12/03				92300.0	28620.0	63680.0	7635.5
03/12/03				93940.0	28620.0	65320.0	7832.1
03/12/03				86260.0	28620.0	57640.0	6911.3
03/12/03				93420.0	28620.0	64800.0	7769.8
03/12/03				89580.0	28620.0	60960.0	7309.4
03/12/03				90940.0	28620.0	62320.0	7472.4
03/12/03				96480.0	28620.0	67860.0	8136.7
03/12/03				82840.0	28620.0	54220.0	6501.2
03/12/03						0.0	0.0
03/12/03						0.0	0.0
03/12/03						0.0	0.0
TOTALS				725,760.0	228,960.0	496,800.0	59,568.3

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1		
	2		

Daily Liquid Application Log King George Landfill

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
		TRUCK 4					
03/13/03	4			89860.0	28420.0	61440.0	7366.9
03/13/03	4			91700.0	28420.0	63280.0	7587.5
03/13/03	4			90380.0	28420.0	61960.0	7429.3
03/13/03	4			91900.0	28420.0	63480.0	7611.5
03/13/03	1			87120.0	28420.0	58700.0	7038.4
03/13/03	1			88160.0	28420.0	59740.0	7163.1
03/13/03	1			89100.0	28420.0	60680.0	7275.8
03/13/03						0.0	0.0
03/13/03						0.0	0.0
03/13/03						0.0	0.0
03/13/03						0.0	0.0
03/13/03						0.0	0.0
TOTALS				628,220.0	198,940.0	429,280.0	51,472.4

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1		
	2		

Daily Liquid Application Log
King George Landfill
Monthly Summary

Date	Net Wt	Gallons
03/01/03	541,840.0	64,968.8
03/02/03	0.0	0.0
03/03/03	827,880.0	99,266.2
03/04/03	794,840.0	95,304.6
03/05/03	496,300.0	59,508.4
03/06/03	0.0	0.0
03/07/03	0.0	0.0
03/08/03	0.0	0.0
03/09/03	0.0	0.0
03/10/03	485,000.0	58,153.5
03/11/03	429,040.0	51,443.6
03/12/03	496,800.0	59,568.3
03/13/03	429,280.0	51,472.4
03/14/03	0.0	0.0
03/15/03	0.0	0.0
03/16/03	0.0	0.0
03/17/03	0.0	0.0
03/18/03	0.0	0.0
03/19/03	0.0	0.0
03/20/03	0.0	0.0
03/21/03	0.0	0.0
03/22/03	0.0	0.0
03/23/03	0.0	0.0
03/24/03	0.0	0.0
03/25/03	0.0	0.0
03/26/03	0.0	0.0
03/27/03	0.0	0.0
03/28/03	0.0	0.0
03/29/03	0.0	0.0
03/30/03	0.0	0.0
03/31/03	0.0	0.0

Totals

4,500,980.0

539,685.9

**Daily Liquid Application Log
King George Landfill**

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
04/11/03	6	truck44		96740.0	29800.0	66940.0	8026.4
04/11/03						0.0	0.0
04/11/03						0.0	0.0
04/11/03						0.0	0.0
04/11/03						0.0	0.0
04/11/03						0.0	0.0
04/11/03						0.0	0.0
04/11/03						0.0	0.0
04/11/03						0.0	0.0
04/11/03						0.0	0.0
04/11/03						0.0	0.0
04/11/03						0.0	0.0
04/11/03						0.0	0.0
TOTALS				96,740.0	29,800.0	66,940.0	8,026.4

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1		
	2		

**Daily Liquid Application Log
King George Landfill**

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
04/19/03	3			96980.0	27660.0	69320.0	8311.8
04/19/03						0.0	0.0
04/19/03						0.0	0.0
04/19/03						0.0	0.0
04/19/03						0.0	0.0
04/19/03						0.0	0.0
04/19/03						0.0	0.0
04/19/03						0.0	0.0
04/19/03						0.0	0.0
04/19/03						0.0	0.0
04/19/03						0.0	0.0
04/19/03						0.0	0.0
04/19/03						0.0	0.0
04/19/03						0.0	0.0
TOTALS				96,980.0	27,660.0	69,320.0	8,311.8

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1		
	2		

Daily Liquid Application Log King George Landfill

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
04/26/03		4		50620.0	27660.0	22960.0	2753.0
04/26/03						0.0	0.0
04/26/03						0.0	0.0
04/26/03						0.0	0.0
04/26/03						0.0	0.0
04/26/03						0.0	0.0
04/26/03						0.0	0.0
04/26/03						0.0	0.0
04/26/03						0.0	0.0
04/26/03						0.0	0.0
04/26/03						0.0	0.0
04/26/03						0.0	0.0
TOTALS				50,620.0	27,660.0	22,960.0	2,753.0

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1		
	2		

Daily Liquid Application Log
King George Landfill
Monthly Summary

Date	Net Wt	Gallons
04/01/03	0.0	0.0
04/02/03	0.0	0.0
04/03/03	0.0	0.0
04/04/03	0.0	0.0
04/05/03	0.0	0.0
04/06/03	0.0	0.0
04/07/03	0.0	0.0
04/08/03	0.0	0.0
04/09/03	0.0	0.0
04/10/03	0.0	0.0
04/11/03	66,940.0	8,026.4
04/12/03	0.0	0.0
04/13/03	0.0	0.0
04/14/03	0.0	0.0
04/15/03	0.0	0.0
04/16/03	0.0	0.0
04/17/03	0.0	0.0
04/18/03	0.0	0.0
04/19/03	69,320.0	8,311.8
04/20/03	0.0	0.0
04/21/03	0.0	0.0
04/22/03	0.0	0.0
04/23/03	0.0	0.0
04/24/03	0.0	0.0
04/25/03	0.0	0.0
04/26/03	22,960.0	2,753.0
04/27/03	0.0	0.0
04/28/03	0.0	0.0
04/29/03	0.0	0.0
04/30/03	0.0	0.0
05/01/03	0.0	0.0

Totals

159,220.0

19,091.1

**Daily Liquid Application Log
King George Landfill**

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
05/12/03	6	truck24		84980.0	27180.0	57800.0	6930.5
05/12/03				84180.0	27180.0	57000.0	6834.5
05/12/03				86340.0	27180.0	59160.0	7093.5
05/12/03				89220.0	27180.0	62040.0	7438.8
05/12/03				90440.0	27180.0	63260.0	7585.1
05/12/03						0.0	0.0
05/12/03						0.0	0.0
05/12/03						0.0	0.0
05/12/03						0.0	0.0
05/12/03						0.0	0.0
05/12/03						0.0	0.0
05/12/03						0.0	0.0
TOTALS				435,160.0	135,900.0	299,260.0	35,882.5

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1		
	2		

Daily Liquid Application Log King George Landfill

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
05/13/03	1			94860.0	27180.0	67680.0	8115.1
05/13/03				90060.0	27180.0	62880.0	7539.6
05/13/03				89580.0	27180.0	62400.0	7482.0
05/13/03				90080.0	27180.0	62900.0	7542.0
05/13/03						0.0	0.0
05/13/03						0.0	0.0
05/13/03						0.0	0.0
05/13/03						0.0	0.0
05/13/03						0.0	0.0
05/13/03						0.0	0.0
05/13/03						0.0	0.0
05/13/03						0.0	0.0
TOTALS				364,580.0	108,720.0	255,860.0	30,678.7

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1	this one	
	2		

Daily Liquid Application Log King George Landfill

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
05/14/03	2			91040.0	27180.0	63860.0	7657.1
05/14/03				86640.0	27180.0	59460.0	7129.5
05/14/03	4			78920.0	27180.0	51740.0	6203.8
05/14/03				84280.0	27180.0	57100.0	6846.5
05/14/03						0.0	0.0
05/14/03						0.0	0.0
05/14/03						0.0	0.0
05/14/03						0.0	0.0
05/14/03						0.0	0.0
05/14/03						0.0	0.0
05/14/03						0.0	0.0
05/14/03						0.0	0.0
05/14/03						0.0	0.0
TOTALS				340,880.0	108,720.0	232,160.0	27,836.9

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1	5.8	
	2		

**Daily Liquid Application Log
King George Landfill**

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
05/15/03	4			83860.0	26800.0	57060.0	6841.7
05/15/03	5			86980.0	26800.0	60180.0	7215.8
05/15/03	5			88000.0	26800.0	61200.0	7338.1
05/15/03	5			92000.0	26800.0	65200.0	7817.7
05/15/03						0.0	0.0
05/15/03						0.0	0.0
05/15/03						0.0	0.0
05/15/03						0.0	0.0
05/15/03						0.0	0.0
05/15/03						0.0	0.0
05/15/03						0.0	0.0
05/15/03						0.0	0.0
05/15/03						0.0	0.0
TOTALS				350,840.0	107,200.0	243,640.0	29,213.4

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1		
	2		

Daily Liquid Application Log King George Landfill

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
05/16/03	6		tr earl	93320.0	29720.0	63600.0	7625.9
05/16/03	6		24	87140.0		87140.0	10448.4
05/16/03			tr earl	91240.0	26960.0	64280.0	7707.4
05/16/03			24	85400.0	29720.0	55680.0	6676.3
05/16/03				85580.0		85580.0	10261.4
05/16/03				85460.0		85460.0	10247.0
05/16/03						0.0	0.0
05/16/03						0.0	0.0
05/16/03						0.0	0.0
05/16/03						0.0	0.0
05/16/03						0.0	0.0
05/16/03						0.0	0.0
TOTALS				528,140.0	86,400.0	441,740.0	52,966.4

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1		
	2		

Daily Liquid Application Log King George Landfill

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
05/19/03	1	24		89420.0	27080.0	62340.0	7474.8
05/19/03	2	24		93440.0	27080.0	66360.0	7956.8
05/19/03	2	24		90360.0	27080.0	63280.0	7587.5
05/19/03	2	24		91280.0	27080.0	64200.0	7697.8
05/19/03	2	24		86020.0	27080.0	58940.0	7067.1
05/19/03						0.0	0.0
05/19/03						0.0	0.0
05/19/03						0.0	0.0
05/19/03						0.0	0.0
05/19/03						0.0	0.0
05/19/03						0.0	0.0
05/19/03						0.0	0.0
TOTALS				450,520.0	135,400.0	315,120.0	37,784.2

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1	14.3	
	2		

Daily Liquid Application Log King George Landfill

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
05/20/03	2	24		90520.0	27080.0	63440.0	7606.7
05/20/03	5	24		92360.0	27080.0	65280.0	7827.3
05/20/03	5	24		85040.0	27080.0	57960.0	6949.6
05/20/03	5	24		87120.0	27080.0	60040.0	7199.0
05/20/03	5	24		91880.0	27080.0	64800.0	7769.8
05/20/03						0.0	0.0
05/20/03						0.0	0.0
05/20/03						0.0	0.0
05/20/03						0.0	0.0
05/20/03						0.0	0.0
05/20/03						0.0	0.0
05/20/03						0.0	0.0
TOTALS				446,920.0	135,400.0	311,520.0	37,352.5

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1		
	2	11.7	

**Daily Liquid Application Log
King George Landfill**

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
05/21/03	5	24		89560.0	27080.0	62480.0	7491.6
05/21/03	6	24		81460.0	27080.0	54380.0	6520.4
05/21/03	6	24		91260.0	27080.0	64180.0	7695.4
05/21/03	6	24		90820.0	27080.0	63740.0	7642.7
05/21/03	6	24		89960.0	27080.0	62880.0	7539.6
05/21/03						0.0	0.0
05/21/03						0.0	0.0
05/21/03						0.0	0.0
05/21/03						0.0	0.0
05/21/03						0.0	0.0
05/21/03						0.0	0.0
05/21/03						0.0	0.0
TOTALS				443,060.0	135,400.0	307,660.0	36,889.7

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1	8.3	
	2		

Daily Liquid Application Log King George Landfill

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
05/22/03	6	24		88540.0	27080.0	61460.0	7369.3
05/22/03	4	24		87260.0	27080.0	60180.0	7215.8
05/22/03	4	24		89600.0	27080.0	62520.0	7496.4
05/22/03	4	24		88920.0	27080.0	61840.0	7414.9
05/22/03	4	24		88260.0	27080.0	61180.0	7335.7
05/22/03						0.0	0.0
05/22/03						0.0	0.0
05/22/03						0.0	0.0
05/22/03						0.0	0.0
05/22/03						0.0	0.0
05/22/03						0.0	0.0
05/22/03						0.0	0.0
TOTALS				442,580.0	135,400.0	307,180.0	36,832.1

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1	9.3	
	2		

Daily Liquid Application Log King George Landfill

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
05/23/03	4	22		93560.0	27080.0	66480.0	7971.2
05/23/03	2	24		81960.0	27080.0	54880.0	6580.3
05/23/03	2	24		90560.0	27080.0	63480.0	7611.5
05/23/03		24		91940.0	27080.0	64860.0	7777.0
05/23/03				87280.0	27080.0	60200.0	7218.2
05/23/03						0.0	0.0
05/23/03						0.0	0.0
05/23/03						0.0	0.0
05/23/03						0.0	0.0
05/23/03						0.0	0.0
05/23/03						0.0	0.0
05/23/03						0.0	0.0
05/23/03						0.0	0.0
TOTALS				445,300.0	135,400.0	309,900.0	37,158.3

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1	7.5	
	2		

Daily Liquid Application Log King George Landfill

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
05/26/03	6	44	tipper	91480.0	29400.0	62080.0	7443.6
05/26/03		24		91080.0	27080.0	64000.0	7673.9
05/26/03		44		93180.0	29400.0	63780.0	7647.5
05/26/03		24		888020.0	27080.0	860940.0	103230.2
05/26/03	2	44		88660.0	29400.0	59260.0	7105.5
05/26/03						0.0	0.0
05/26/03						0.0	0.0
05/26/03						0.0	0.0
05/26/03						0.0	0.0
05/26/03						0.0	0.0
05/26/03						0.0	0.0
05/26/03						0.0	0.0
TOTALS				1,252,420.0	142,360.0	1,110,060.0	133,100.7

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1		
	2		

**Daily Liquid Application Log
King George Landfill**

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
05/27/03	2	24		83340.0	27080.0	56260.0	6745.8
05/27/03	2	24		96900.0	27080.0	69820.0	8371.7
05/27/03	2	24		92920.0	27080.0	65840.0	7894.5
05/27/03						0.0	0.0
05/27/03						0.0	0.0
05/27/03						0.0	0.0
05/27/03						0.0	0.0
05/27/03						0.0	0.0
05/27/03						0.0	0.0
05/27/03						0.0	0.0
05/27/03						0.0	0.0
05/27/03						0.0	0.0
05/27/03						0.0	0.0
TOTALS				273,160.0	81,240.0	191,920.0	23,012.0

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1	18.5	
	2		

Daily Liquid Application Log King George Landfill

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
05/28/03	2	truck 24		76340.0	27080.0	49260.0	5906.5
05/28/03	2	truck 24		90740.0	27080.0	63660.0	7633.1
05/28/03	5	truck 24		94020.0	27080.0	66940.0	8026.4
05/28/03	5	truck 24		95520.0	27080.0	68440.0	8206.2
05/28/03				93640.0	27080.0	66560.0	7980.8
05/28/03						0.0	0.0
05/28/03						0.0	0.0
05/28/03						0.0	0.0
05/28/03						0.0	0.0
05/28/03						0.0	0.0
05/28/03						0.0	0.0
05/28/03						0.0	0.0
05/28/03						0.0	0.0
TOTALS				450,260.0	135,400.0	314,860.0	37,753.0

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1	23.1	
	2		

Daily Liquid Application Log King George Landfill

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
05/29/03	5	24		91800.0	27080.0	64720.0	7760.2
05/29/03	4	24		92480.0	27080.0	65400.0	7841.7
05/29/03	4	24		95240.0	27080.0	68160.0	8172.7
05/29/03	4	24		94280.0	27080.0	67200.0	8057.6
05/29/03	4	24		94420.0	27080.0	67340.0	8074.3
05/29/03						0.0	0.0
05/29/03						0.0	0.0
05/29/03						0.0	0.0
05/29/03						0.0	0.0
05/29/03						0.0	0.0
05/29/03						0.0	0.0
05/29/03						0.0	0.0
TOTALS				468,220.0	135,400.0	332,820.0	39,906.5

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1	23.6	
	2		

Daily Liquid Application Log King George Landfill

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
05/30/03	4	24		87340.0	27080.0	60260.0	7225.4
05/30/03	6	24		91540.0	27080.0	64460.0	7729.0
05/30/03	6	24		92880.0	27080.0	65800.0	7889.7
05/30/03	6	24		88820.0	27080.0	61740.0	7402.9
05/30/03	6	24		95080.0	27080.0	68000.0	8153.5
05/30/03						0.0	0.0
05/30/03						0.0	0.0
05/30/03						0.0	0.0
05/30/03						0.0	0.0
05/30/03						0.0	0.0
05/30/03						0.0	0.0
05/30/03						0.0	0.0
TOTALS				455,660.0	135,400.0	320,260.0	38,400.5

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1	23.6	
	2		

Daily Liquid Application Log King George Landfill

Date	Trench #	Liquid Description	Source	Gross Wt (Lbs)	Tare Wt (Lbs)	Net Wt (Lbs)	Gallons
05/31/03	6	24		93340.0		93340.0	11191.8
05/31/03	3	24		96540.0		96540.0	11575.5
05/31/03	2	24		96880.0		96880.0	11616.3
05/31/03	4	24		95420.0		95420.0	11441.2
05/31/03	4	24		95840.0		95840.0	11491.6
05/31/03						0.0	0.0
05/31/03						0.0	0.0
05/31/03						0.0	0.0
05/31/03						0.0	0.0
05/31/03						0.0	0.0
05/31/03						0.0	0.0
05/31/03						0.0	0.0
TOTALS				478,020.0	0.0	478,020.0	57,316.5

Leachate Tank Levels

Date	Tank #	Initial Level (before day's pumping)	Final Liquid Level (after day's pumping)
	1	22.9	
	2		

Daily Liquid Application Log
King George Landfill
Monthly Summary

Date	Net Wt	Gallons
05/01/03	0.0	0.0
05/02/03	0.0	0.0
05/03/03	0.0	0.0
05/04/03	0.0	0.0
05/05/03	0.0	0.0
05/06/03	0.0	0.0
05/07/03	0.0	0.0
05/08/03	0.0	0.0
05/09/03	0.0	0.0
05/10/03	0.0	0.0
05/11/03	0.0	0.0
05/12/03	299,260.0	35,882.5
05/13/03	255,860.0	30,678.7
05/14/03	232,160.0	27,836.9
05/15/03	243,640.0	29,213.4
05/16/03	441,740.0	52,966.4
05/17/03	0.0	0.0
05/18/03	0.0	0.0
05/19/03	315,120.0	37,784.2
05/20/03	311,520.0	37,352.5
05/21/03	307,660.0	36,889.7
05/22/03	307,180.0	36,832.1
05/23/03	309,900.0	37,158.3
05/24/03	0.0	0.0
05/25/03	0.0	0.0
05/26/03	1,110,060.0	133,100.7
05/27/03	191,920.0	23,012.0
05/28/03	314,860.0	37,753.0
05/29/03	332,820.0	39,906.5
05/30/03	320,260.0	38,400.5
05/31/03	478,020.0	57,316.5

Totals	5,771,980.0	692,083.9
---------------	--------------------	------------------

APPENDIX C - SETTLEMENT
(available upon request)

APPENDIX D - LANDFILL GAS DATA
(summary data included, complete data available upon request)



Waste Industry Experts

Joyce Engineering, Inc.
4808 Radford Ave
Richmond, VA 23230

tel: 804/355-4520
fax: 804/355-4282

www.JoyceEngineering.com

April 10, 2003

Douglas Mandeville
Senior Staff Engineer
Geosyntec Consultants, Inc.
10015 Old Columbia Road
Suite A-200
Columbia, Maryland 21046

Re: New King George County Landfill Permit - No. 586
XL Project Sampling Results - January 2003
JEI Project No. 464.00/Task No. 20/File Nos. 4.2 and 6.2

Dear Mr. Mandeville:

Please find attached the January 2003 results for leachate and landfill gas sampling and monitoring conducted at the New King George County Landfill for the XL Program. A brief summary of each activity is presented below.

Surface Emissions Monitoring

Joyce Engineering, Inc. (JEI) performed surface emissions monitoring (SEM) at the New King George County Landfill on January 29, 2003. The monitoring was performed using a Foxboro TVA 1000B flame ionization detector. The instrument was calibrated in accordance with Environmental Protection Agency (EPA) Method 21 prior to the event. The calibration data form is presented in Attachment 1. JEI field personnel walked the site, monitoring and logging points at 30-meter intervals, with the distance between pathways not greater than 30 meters. A drawing presented in Attachment 2 depicts the route followed by JEI personnel during the January 2003 SEM event. Please note that the monitoring route is altered from previous events due to landfilling activity.

The instrument was programmed to continuously monitor while walking along the pathway. The instrument was also programmed to sound an audible alarm if methane concentrations at the surface exceeded 500 parts per million (ppm) over background (see the calibration data form for background checks). The January 2003 methane measurements were data-logged and are also presented in Attachment 1. There were no methane measurements above the 500-ppm limit. Therefore, the requirements set forth in 40 CFR 60.755.c have been satisfied for the January 2003 XL Project SEM event.

Mr. Douglas Mandeville

April 10, 2003

Page 2 of 3

Leachate Sampling

On January 27, 2003, JEI personnel collected leachate samples for the XL Program. Five leachate samples were collected from leachate collection sumps, and one sample was collected from the leachate holding tank during the January 2003 leachate sampling event. In addition, a field blank was collected, and a laboratory-supplied trip blank accompanied the samples. After collection, the samples were placed in a cooler on ice and shipped to Severn Trent Laboratories (STL) of Amherst, New York, and Microbial Insight (MI) of Rockford, Tennessee, for analysis of biochemical oxygen demand (BOD), sulfate, chemical oxygen demand (COD), chloride, total organic carbon (TOC), potassium, volatile organic compounds, volatile organic acids, semi-volatile organic compounds, RCRA hazardous metals, ammonia-nitrogen, phosphorus, total Kjeldahl nitrogen (TKN), total dissolved solids (TDS), nitrate, nitrite, sulfide, cyanide, total phosphate, ortho-phosphate, sodium, magnesium, calcium, and bicarbonate/carbonate. In addition, field measurements of pH, specific conductance, and temperature were collected at the time of sampling.

Field sampling forms, chain-of-custody forms, and laboratory certificates-of-analysis for the January 2003 leachate sampling event are presented in Attachment 3.

Landfill Gas Extraction Well Monitoring

On January 23 and 27, 2003, JEI personnel collected landfill gas (LFG) measurements of methane, carbon dioxide, oxygen, balance gases, and hydrogen sulfide from 20 LFG extraction wells. In addition, measurements of temperature, flow rate, static vacuum, and differential pressure were recorded. Measurements were recorded using a CES-LandTEC GEM 500 instrument. Hydrogen sulfide measurements were recorded using an Industrial Scientific instrument. Both instruments were calibrated with a known calibration standard before and after use during each event. A table displaying the LFG monitoring results is presented in Attachment 4.

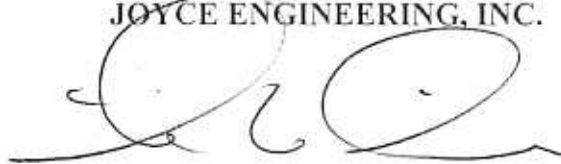
Landfill Gas Sampling

On January 27, 2003, JEI personnel collected samples from the LFG collection system. Four 1-liter summa canister samples were collected from the western, central, and eastern header pipe of the LFG collection system, and from a location downstream of the LFG collection system blower. The samples were sent to STL of Los Angeles, California, for analysis of volatile organic compounds by EPA Method TO-15, methane, oxygen, carbon dioxide, nitrogen, and non-methanogenic organic compounds (NMOCs) by ASTM methods. A chain-of-custody form and laboratory certificates-of-analyses for the January 2003 LFG samples are presented in Attachment 5.

Please feel free to contact me at 804-355-4520 or at mwilliams@joyceengineering.com if you have any questions concerning the XL Program results presented herein.

Mr. Douglas Mandeville
April 10, 2003
Page 3 of 3

Sincerely,
JOYCE ENGINEERING, INC.



Michael G. Williams, C.P.G.
Senior Project Hydrogeologist

Attachments:

- Attachment 1 - SEM Calibration Logs and NSPS SEM Monitoring Data: January 2003
- Attachment 2 - SEM Route Drawing
- Attachment 3 - Leachate Field Sampling Forms, Chain-of-Custody Forms, and
Laboratory Certificates-of-Analysis: January 2003
- Attachment 4 - Landfill Gas Extraction Well Monitoring Data
- Attachment 5 - Landfill Gas Field Sampling Forms, Chain-of-Custody Form, and Laboratory
Certificates-of-Analysis: January 2003

C: James Stenborg, P.E., WMI
Howard Burns, WMI
David McMillan, JEI (letter only)

P:\Waste Management\Virginia\King George County New - WMI\Environmental\XL Program\XL Program letter Jan 03.doc

NSPS Surface Emission Monitoring Data
 XL Project
 January 29, 2003
 Waste Management, Inc.
 New King George County Landfill, Permit No. 580

Date	Time	Tag #	Conc. Methane (ppm)	Pass/Fail	Notes
29-Jan-03	10:42:14	1	8.1	OK	
29-Jan-03	10:42:53	2	10.14	OK	
29-Jan-03	10:43:39	3	13.71	OK	
29-Jan-03	10:46:12	4	19.68	OK	
29-Jan-03	10:46:58	5	16.85	OK	
29-Jan-03	10:47:33	6	15.89	OK	
29-Jan-03	10:48:08	7	15.72	OK	
29-Jan-03	10:48:46	8	53.43	OK	
29-Jan-03	10:49:20	9	25.06	OK	
29-Jan-03	10:52:26	10	21.54	OK	
29-Jan-03	10:53:07	11	11.71	OK	
29-Jan-03	10:53:48	12	7.78	OK	
29-Jan-03	10:54:28	13	5.59	OK	
29-Jan-03	10:55:08	14	4.39	OK	
29-Jan-03	10:55:53	15	3.53	OK	
29-Jan-03	10:56:37	16	3.43	OK	
29-Jan-03	10:57:20	17	3.06	OK	
29-Jan-03	10:58:01	18	4	OK	
29-Jan-03	10:58:41	19	2.84	OK	
29-Jan-03	10:59:20	20	2.77	OK	
29-Jan-03	11:00:07	21	2.93	OK	
29-Jan-03	11:00:48	22	3.08	OK	
29-Jan-03	11:01:28	23	2.68	OK	
29-Jan-03	11:02:09	24	3.65	OK	
29-Jan-03	11:02:54	25	6.12	OK	
29-Jan-03	11:03:43	26	54.96	OK	
29-Jan-03	11:04:35	27	48.17	OK	
29-Jan-03	11:05:22	28	324	OK	
29-Jan-03	11:12:24	29	89.69	OK	
29-Jan-03	11:21:02	30	29.84	OK	
29-Jan-03	11:21:42	31	5.14	OK	
29-Jan-03	11:22:28	32	3.43	OK	
29-Jan-03	11:23:10	33	3.15	OK	
29-Jan-03	11:23:53	34	3.06	OK	
29-Jan-03	11:24:35	35	2.96	OK	
29-Jan-03	11:25:15	36	2.97	OK	
29-Jan-03	11:25:57	37	2.87	OK	
29-Jan-03	11:26:38	38	2.87	OK	
29-Jan-03	11:27:18	39	2.86	OK	
29-Jan-03	11:28:02	40	2.86	OK	
29-Jan-03	11:29:15	41	2.87	OK	
29-Jan-03	11:31:00	42	204	OK	
29-Jan-03	11:31:47	43	90.94	OK	
29-Jan-03	11:32:33	44	16.41	OK	
29-Jan-03	11:33:27	45	155	OK	
29-Jan-03	11:34:11	46	49.29	OK	
29-Jan-03	11:34:55	47	29.04	OK	
29-Jan-03	11:35:35	48	76.74	OK	
29-Jan-03	11:36:32	49	29.89	OK	
29-Jan-03	11:37:12	50	186	OK	

NSPS Surface Emission Monitoring Data
 XL Project
 January 29, 2003
 Waste Management, Inc.
 New King George County Landfill, Permit No. 580

Date	Time	Tag #	Conc. Methane (ppm)	Pass/Fail	Notes
29-Jan-03	11:37:47	51	22.2	OK	
29-Jan-03	11:38:49	52	9.42	OK	
29-Jan-03	11:39:29	53	12.15	OK	
29-Jan-03	11:40:13	54	38.01	OK	
29-Jan-03	11:41:13	55	37.25	OK	
29-Jan-03	11:41:55	56	19.36	OK	
29-Jan-03	11:42:37	57	20.92	OK	
29-Jan-03	11:43:36	58	27.42	OK	
29-Jan-03	11:44:21	59	76.78	OK	
29-Jan-03	11:45:04	60	33.43	OK	
29-Jan-03	11:45:48	61	338	OK	
29-Jan-03	11:46:39	62	45.68	OK	
29-Jan-03	11:47:28	63	89.24	OK	
29-Jan-03	11:48:40	64	178	OK	
29-Jan-03	11:49:25	65	31.71	OK	
29-Jan-03	11:50:14	66	53.22	OK	
29-Jan-03	11:52:08	67	64.48	OK	
29-Jan-03	11:53:28	68	241	OK	
29-Jan-03	11:54:23	69	168	OK	
29-Jan-03	11:55:07	70	132	OK	
29-Jan-03	11:55:50	71	166	OK	
29-Jan-03	11:56:34	72	56.11	OK	
29-Jan-03	11:57:16	73	124	OK	
29-Jan-03	11:58:03	74	24.49	OK	
29-Jan-03	11:58:48	75	18.33	OK	
29-Jan-03	11:59:42	76	21.52	OK	
29-Jan-03	12:00:30	77	13.56	OK	
29-Jan-03	12:01:17	78	9.64	OK	
29-Jan-03	12:02:14	79	8.67	OK	
29-Jan-03	12:02:57	80	9.97	OK	
29-Jan-03	12:03:36	81	11.51	OK	
29-Jan-03	12:04:19	82	13.61	OK	
29-Jan-03	12:05:06	83	17.54	OK	
29-Jan-03	12:05:48	84	18.16	OK	
29-Jan-03	12:06:31	85	45.37	OK	
29-Jan-03	12:07:10	86	27.58	OK	
29-Jan-03	12:07:50	87	22.6	OK	
29-Jan-03	12:08:26	88	21.42	OK	
29-Jan-03	12:09:21	89	19.7	OK	
29-Jan-03	12:10:01	90	63.02	OK	
29-Jan-03	12:10:41	91	36.5	OK	
29-Jan-03	12:11:25	92	69.59	OK	
29-Jan-03	12:12:01	93	54.85	OK	
29-Jan-03	12:12:42	94	143	OK	
29-Jan-03	12:13:35	95	65.84	OK	
29-Jan-03	12:14:17	96	111	OK	
29-Jan-03	12:14:56	97	32.53	OK	
29-Jan-03	12:15:36	98	34.73	OK	
29-Jan-03	12:16:17	99	86.4	OK	
29-Jan-03	12:16:58	100	24.78	OK	
29-Jan-03	12:17:39	101	31.87	OK	

NSPS Surface Emission Monitoring Data
 XL Project
 January 29, 2003
 Waste Management, Inc.
 New King George County Landfill, Permit No. 580

Date	Time	Tag #	Conc. Methane (ppm)	Pass/Fail	Notes
29-Jan-03	12:18:21	102	32.55	OK	
29-Jan-03	12:19:08	103	18.6	OK	
29-Jan-03	12:19:46	104	42.79	OK	
29-Jan-03	12:20:28	105	44.83	OK	
29-Jan-03	12:21:12	106	237	OK	
29-Jan-03	12:22:09	107	31.93	OK	
29-Jan-03	12:22:54	108	5.92	OK	
29-Jan-03	12:23:31	109	4.11	OK	
29-Jan-03	12:24:19	110	8.54	OK	
29-Jan-03	12:25:01	111	8.06	OK	
29-Jan-03	12:25:47	112	22.21	OK	
29-Jan-03	12:26:42	113	7.36	OK	
29-Jan-03	12:27:26	114	11.57	OK	
29-Jan-03	12:28:09	115	54.21	OK	
29-Jan-03	12:28:51	116	83.81	OK	
29-Jan-03	12:29:36	117	54.3	OK	
29-Jan-03	12:30:21	118	47.12	OK	
29-Jan-03	12:31:03	119	59.65	OK	
29-Jan-03	12:32:22	120	108	OK	
29-Jan-03	12:33:06	121	92.93	OK	
29-Jan-03	12:33:50	122	110	OK	
29-Jan-03	12:34:32	123	46.94	OK	
29-Jan-03	12:35:18	124	83.08	OK	
29-Jan-03	12:36:00	125	128	OK	
29-Jan-03	12:36:51	126	24.62	OK	
29-Jan-03	12:37:42	127	8.64	OK	
29-Jan-03	12:39:43	128	13.33	OK	
29-Jan-03	12:40:44	129	8.42	OK	
29-Jan-03	12:41:27	130	52.43	OK	
29-Jan-03	12:42:12	131	17.31	OK	
29-Jan-03	12:42:54	132	16.38	OK	
29-Jan-03	12:43:41	133	38.58	OK	
29-Jan-03	12:44:22	134	34.07	OK	
29-Jan-03	12:45:07	135	56.11	OK	
29-Jan-03	12:45:49	136	27.22	OK	
29-Jan-03	12:46:59	137	49.91	OK	
29-Jan-03	12:47:42	138	17.98	OK	
29-Jan-03	12:48:47	139	15.88	OK	
29-Jan-03	12:53:39	140	6.63	OK	
29-Jan-03	12:54:23	141	9.31	OK	
29-Jan-03	12:55:06	142	8.85	OK	
29-Jan-03	12:55:50	143	8.38	OK	
29-Jan-03	12:56:31	144	10.63	OK	
29-Jan-03	12:57:19	145	21.58	OK	
29-Jan-03	12:58:02	146	24.81	OK	
29-Jan-03	12:58:47	147	23.01	OK	
29-Jan-03	12:59:33	148	16.69	OK	
29-Jan-03	13:00:22	149	11.9	OK	
29-Jan-03	13:01:04	150	29.32	OK	
29-Jan-03	13:01:40	151	54.87	OK	
29-Jan-03	13:02:25	152	20.46	OK	

NSPS Surface Emission Monitoring Data
 XL Project
 January 29, 2003
 Waste Management, Inc.
 New King George County Landfill, Permit No. 580

Date	Time	Tag #	Conc. Methane (ppm)	Pass/Fail	Notes
29-Jan-03	13:02:59	153	43.92	OK	
29-Jan-03	13:03:42	154	66.75	OK	
29-Jan-03	13:05:39	155	35.69	OK	
29-Jan-03	13:06:20	156	64.49	OK	
29-Jan-03	13:08:44	157	34.35	OK	
29-Jan-03	13:09:22	158	99.94	OK	
29-Jan-03	13:10:22	159	24.09	OK	
29-Jan-03	13:11:22	160	24.62	OK	
29-Jan-03	13:12:17	161	19.03	OK	
29-Jan-03	13:13:04	162	19.14	OK	
29-Jan-03	13:13:51	163	71.42	OK	
29-Jan-03	13:14:38	164	36.75	OK	
29-Jan-03	13:15:37	165	182	OK	
29-Jan-03	13:16:28	166	223	OK	
29-Jan-03	13:17:06	167	25.59	OK	
29-Jan-03	13:17:44	168	28.32	OK	
29-Jan-03	13:18:21	169	33.89	OK	

No. of points monitored: 169 Background Upwind: 3.24 ppm
 No. of exceedence points: 0 Background Downwind: 3.84 ppm

NOTES:

Weather: Overcast, occasional light rain, highs in the upper 30s to low 40s.
 Barometric pressure average 30.06 inches of mercury

Instrument: Foxboro TVA-1000B; ID Number 69437



Waste Industry Experts

Joyce Engineering, Inc.
4808 Radford Ave
Richmond, VA 23230

tel: 804/355-4520
fax: 804/355-4282

www.JoyceEngineering.com

June 6, 2003

Mr. Douglas Mandeville
Senior Staff Engineer
Geosyntec Consultants, Inc.
10015 Old Columbia Road
Suite A-200
Columbia, Maryland 21046

Re: New King George County Landfill Permit - No. 586
XL Project Sampling Results - February 2003
JEI Project No. 464.00/Task No. 20/File Nos. 4.2 and 6.2

Dear Mr. Mandeville:

Please find attached the February 2003 results for leachate and landfill gas sampling and monitoring conducted at the New King George County Landfill for the XL Program. A brief summary of each activity is presented below.

Surface Emissions Monitoring

The February 2003 Surface Emissions Monitoring (SEM) event was conducted by another Waste Management, Inc. (WMI) consultant; therefore, those results are not included.

Leachate Sampling

On February 24, 2003, Joyce Engineering, Inc. (JEI) personnel collected leachate samples for the XL Program. Five leachate samples were collected from leachate collection sumps, and one sample was collected from the leachate holding tank during the February 2003 leachate sampling event. In addition, a field blank was collected, and a laboratory-supplied trip blank accompanied the samples. After collection, the samples were placed in a cooler on ice and shipped to Severn Trent Laboratories (STL) of Amherst, New York, and Microbial Insights (MI) of Rockford, Tennessee, for analysis of biochemical oxygen demand (BOD), sulfate, chemical oxygen demand (COD), chloride, total organic carbon (TOC), potassium, volatile organic compounds, volatile organic acids, semi-volatile organic compounds, RCRA hazardous metals, ammonia-nitrogen, phosphorus, total Kjeldahl nitrogen (TKN), total dissolved solids (TDS), nitrate, nitrite, sulfide, cyanide, total phosphate, ortho-phosphate, sodium, magnesium, calcium, and bicarbonate/carbonate. In addition, field measurements of pH, specific conductance, and temperature were collected at the time of sampling.

Field sampling forms, chain-of-custody forms, and laboratory certificates-of-analysis for the February 2003 leachate sampling event are presented in Attachment 1.

Mr. Douglas Mandeville
June 6, 2003
Page 2 of 3

Landfill Gas Extraction Well Monitoring

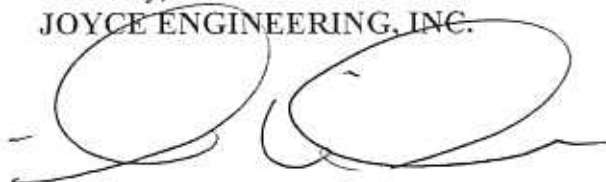
On February 25, 2003, JEI personnel collected landfill gas (LFG) measurements of methane, carbon dioxide, oxygen, balance gases, and hydrogen sulfide from 26 LFG extraction wells. Hydrogen sulfide readings were not collected during the February 2003 event due to a malfunctioning meter. In addition, measurements of temperature, flow rate, static vacuum, and differential pressure were recorded. Measurements were recorded using a CES-LandTEC GEM 500 instrument, which was calibrated with a known calibration standard before and after use during each event. A table displaying the LFG monitoring results is presented in Attachment 2.

Landfill Gas Sampling

On February 24, 2003, JEI personnel collected samples from the LFG collection system. Four 1-liter summa canister samples were collected from the western, central, and eastern header pipe of the LFG collection system, and from a location downstream of the LFG collection system blower. The samples were sent to STL of Los Angeles, California, for analysis of volatile organic compounds by EPA Method TO-15, and methane, oxygen, carbon dioxide, nitrogen, and non-methanogenic organic compounds (NMOCs) by ASTM methods. A chain-of-custody form and laboratory certificates-of-analysis for the February 2003 LFG samples are presented in Attachment 3.

Please feel free to contact me at 804-355-4520 or at mwilliams@joyceengineering.com if you have any questions concerning the XL Program results presented herein.

Sincerely,
JOYCE ENGINEERING, INC.



Michael G. Williams, C.P.G.
Senior Project Hydrogeologist

Attachments:

- Attachment 1 - Leachate Field Sampling Forms, Chain-of-Custody Forms, and Laboratory Certificates-of-Analysis: February 2003
- Attachment 2 - Landfill Gas Extraction Well Monitoring Data
- Attachment 3 - Landfill Gas Field Sampling Forms, Chain-of-Custody Form, and Laboratory Certificates-of-Analysis: February 2003



Waste Industry Experts

Joyce Engineering, Inc.
4808 Radford Ave
Richmond, VA 23230

tel: 804/355-4520
fax: 804/355-4282

www.JoyceEngineering.com

June 9, 2003

Mr. Douglas Mandeville
Senior Staff Engineer
Geosyntec Consultants, Inc.
10015 Old Columbia Road
Suite A-200
Columbia, Maryland 21046

Re: New King George County Landfill Permit - No. 586
XL Project Sampling Results - March 2003
JEI Project No. 464.00/Task No. 20/File Nos. 4.2 and 6.2

Dear Mr. Mandeville:

Please find attached the March 2003 results for leachate and landfill gas sampling and monitoring conducted at the New King George County Landfill for the XL Program. A brief summary of each activity is presented below.

Surface Emissions Monitoring

Joyce Engineering, Inc. (JEI) performed surface emissions monitoring (SEM) at the New King George County Landfill on March 19, 2003. The monitoring was performed using a Foxboro TVA 1000B flame ionization detector. The instrument was calibrated in accordance with Environmental Protection Agency (EPA) Method 21 prior to the event. The calibration data form is presented in Attachment 1. JEI field personnel walked the site, monitoring and logging points at 30-meter intervals, with the distance between pathways not greater than 30 meters. A drawing presented in Attachment 2 depicts the route followed by JEI personnel during the March 2003 SEM event. Please note that the monitoring route is altered from previous events due to landfilling activity.

The instrument was programmed to continuously monitor while walking along the pathway. The instrument was also programmed to sound an audible alarm if methane concentrations at the surface exceeded 500 parts per million (ppm) over background (see the calibration data form for background checks). The March 2003 methane measurements were data-logged and are also presented in Attachment 1. There were no methane measurements above the 500-ppm limit. Therefore, the requirements set forth in 40 CFR 60.755.c have been satisfied for the March 2003 XL Project SEM event.

Leachate Sampling

On March 24, 2003, Joyce Engineering, Inc. (JEI) personnel collected leachate samples for the XL Program. Five leachate samples were collected from leachate collection sumps, and one sample was collected from the leachate holding tank during the March 2003 leachate sampling event. In addition, a field blank was collected, and a laboratory-supplied trip blank accompanied the samples. After collection, the samples were placed in a cooler on ice and shipped to Severn Trent Laboratories (STL) of Amherst, New York, and Microbial Insights (MI) of Rockford, Tennessee, for analysis of biochemical oxygen demand (BOD), sulfate, chemical oxygen demand (COD), chloride, total organic carbon (TOC), potassium, volatile organic compounds, volatile organic acids, semi-volatile organic compounds, RCRA hazardous metals, ammonia-nitrogen, phosphorus, total Kjeldahl nitrogen (TKN), total dissolved solids (TDS), nitrate, nitrite, sulfide, cyanide, total phosphate, ortho-phosphate, sodium, magnesium, calcium, and bicarbonate/carbonate. In addition, field measurements of pH, specific conductance, and temperature were collected at the time of sampling.

Field sampling forms, chain-of-custody forms, and laboratory certificates-of-analysis for the March 2003 leachate sampling event are presented in Attachment 3.

Landfill Gas Extraction Well Monitoring

On March 25, 2003, JEI personnel collected landfill gas (LFG) measurements of methane, carbon dioxide, oxygen, balance gases, and hydrogen sulfide from 26 LFG extraction wells. In addition, measurements of temperature, flow rate, static vacuum, and differential pressure were recorded. Measurements were recorded using a CES-LandTEC GEM 500 instrument, which was calibrated with a known calibration standard before and after use during each event. A table displaying the LFG monitoring results is presented in Attachment 4.

Landfill Gas Sampling

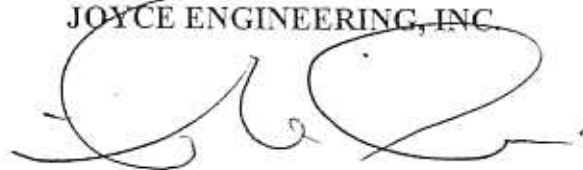
On March 24, 2003, JEI personnel collected samples from the LFG collection system. Four 1-liter summa canister samples were collected from the western, central, and eastern header pipe of the LFG collection system, and from a location downstream of the LFG collection system blower. The samples were sent to STL of Los Angeles, California, for analysis of volatile organic compounds by EPA Method TO-15, and methane, oxygen, carbon dioxide, nitrogen, and non-methanogenic organic compounds (NMOCs) by ASTM methods. A chain-of-custody form and laboratory certificates-of-analyses for the March 2003 LFG samples are presented in Attachment 5.

Mr. Douglas Mandeville
June 9, 2003
Page 3 of 3

Please feel free to contact me at 804-355-4520 or at mwilliams@joyceengineering.com if you have any questions concerning the XL Program results presented herein.

Sincerely,

JOYCE ENGINEERING, INC



Michael G. Williams, C.P.G.
Senior Project Hydrogeologist

Attachments:

- Attachment 1 - SEM Calibration Logs and NSPS SEM Monitoring Data: March 2003
- Attachment 2 - SEM Route Drawing
- Attachment 3 - Leachate Field Sampling Forms, Chain-of-Custody Forms, and Laboratory Certificates-of-Analysis: March 2003
- Attachment 4 - Landfill Gas Extraction Well Monitoring Data
- Attachment 5 - Landfill Gas Field Sampling Forms, Chain-of-Custody Form, and Laboratory Certificates-of-Analysis: March 2003

C: James Stenborg, P.E., WMI
Howard Burns, WMI
David McMillan, JEI (letter only)

P:\Waste Management\Virginia\King George County New - WMI\Environmental\XL Program\XL Program letter Mar03.doc

NSPS Surface Emissions Monitoring Data
 XL Project
 March 19, 2003
 Waste Management, Inc.
 New King George County Landfill, Permit No. 580

Date	Time	Tag #	Conc. Methane (ppm)	Pass/Fail	Notes
19-Mar-03	10:23:03	1	3.27	OK	
19-Mar-03	10:23:35	2	2.13	OK	
19-Mar-03	10:24:09	3	2.71	OK	
19-Mar-03	10:26:22	4	1.68	OK	
19-Mar-03	10:26:55	5	3.54	OK	
19-Mar-03	10:27:30	6	3.82	OK	
19-Mar-03	10:28:02	7	6.03	OK	
19-Mar-03	10:28:40	8	16.04	OK	
19-Mar-03	10:29:13	9	26.5	OK	
19-Mar-03	10:32:34	10	20.6	OK	
19-Mar-03	10:33:15	11	2.46	OK	
19-Mar-03	10:33:48	12	2.15	OK	
19-Mar-03	10:34:24	13	2.05	OK	
19-Mar-03	10:35:00	14	2.19	OK	
19-Mar-03	10:35:40	15	2.13	OK	
19-Mar-03	10:36:14	16	2.15	OK	
19-Mar-03	10:36:57	17	2.24	OK	
19-Mar-03	10:37:35	18	2.28	OK	
19-Mar-03	10:38:14	19	2.37	OK	
19-Mar-03	10:38:49	20	3.31	OK	
19-Mar-03	10:39:22	21	3.09	OK	
19-Mar-03	10:40:01	22	2.58	OK	
19-Mar-03	10:40:40	23	2.47	OK	
19-Mar-03	10:41:11	24	3.04	OK	
19-Mar-03	10:41:44	25	3.38	OK	
19-Mar-03	10:42:18	26	3.37	OK	
19-Mar-03	10:42:51	27	3.36	OK	
19-Mar-03	10:43:34	28	3.78	OK	
19-Mar-03	10:44:14	29	22.14	OK	
19-Mar-03	10:44:55	30	12.23	OK	
19-Mar-03	10:45:34	31	4.25	OK	
19-Mar-03	10:46:11	32	3.4	OK	
19-Mar-03	10:46:49	33	2.59	OK	
19-Mar-03	10:47:28	34	5.97	OK	
19-Mar-03	10:48:07	35	3.47	OK	
19-Mar-03	10:48:45	36	4.84	OK	
19-Mar-03	10:49:21	37	4.08	OK	
19-Mar-03	10:49:55	38	2.23	OK	
19-Mar-03	10:50:37	39	2.42	OK	
19-Mar-03	10:51:18	40	10.01	OK	
19-Mar-03	10:52:00	41	17.36	OK	
19-Mar-03	10:52:43	42	11.17	OK	
19-Mar-03	10:53:28	43	12.32	OK	
19-Mar-03	10:54:11	44	9.12	OK	
19-Mar-03	10:55:12	45	7.44	OK	
19-Mar-03	10:55:52	46	10.16	OK	
19-Mar-03	10:56:31	47	14.61	OK	
19-Mar-03	10:57:13	48	14.26	OK	
19-Mar-03	10:57:59	49	16.58	OK	
19-Mar-03	10:58:41	50	11.1	OK	

NSPS Surface Emissions Monitoring Data
 XL Project
 March 19, 2003
 Waste Management, Inc.
 New King George County Landfill, Permit No. 580

Date	Time	Tag #	Conc. Methane (ppm)	Pass/Fail	Notes
19-Mar-03	10:59:28	51	8.2	OK	
19-Mar-03	11:00:10	52	4.16	OK	
19-Mar-03	11:00:57	53	35.88	OK	
19-Mar-03	11:01:49	54	36.42	OK	
19-Mar-03	11:02:34	55	34.82	OK	
19-Mar-03	11:03:18	56	15.91	OK	
19-Mar-03	11:04:03	57	10.1	OK	
19-Mar-03	11:04:45	58	5.85	OK	
19-Mar-03	11:05:26	59	4.31	OK	
19-Mar-03	11:06:07	60	5.95	OK	
19-Mar-03	11:06:52	61	3.64	OK	
19-Mar-03	11:07:34	62	3.01	OK	
19-Mar-03	11:08:20	63	2.7	OK	
19-Mar-03	11:09:06	64	2.74	OK	
19-Mar-03	11:09:49	65	3.82	OK	
19-Mar-03	11:10:36	66	3.22	OK	
19-Mar-03	11:11:21	67	2.85	OK	
19-Mar-03	11:12:04	68	2.83	OK	
19-Mar-03	11:12:40	69	3.39	OK	
19-Mar-03	11:13:12	70	3.2	OK	
19-Mar-03	11:14:01	71	3.48	OK	
19-Mar-03	11:14:36	72	3.06	OK	
19-Mar-03	11:15:17	73	5.12	OK	
19-Mar-03	11:16:17	74	12.84	OK	
19-Mar-03	11:16:53	75	5.73	OK	
19-Mar-03	11:17:28	76	3.28	OK	
19-Mar-03	11:18:18	77	4.3	OK	
19-Mar-03	11:18:57	78	6.58	OK	
19-Mar-03	11:19:33	79	11.6	OK	
19-Mar-03	11:20:35	80	14.11	OK	
19-Mar-03	11:21:08	81	8.63	OK	
19-Mar-03	11:22:01	82	8.18	OK	
19-Mar-03	11:22:40	83	39.13	OK	
19-Mar-03	11:23:15	84	8.37	OK	
19-Mar-03	11:23:50	85	7.86	OK	
19-Mar-03	11:24:40	86	6.01	OK	
19-Mar-03	11:25:15	87	6.49	OK	
19-Mar-03	11:25:48	88	13.12	OK	
19-Mar-03	11:26:22	89	12.36	OK	
19-Mar-03	11:26:57	90	6.49	OK	
19-Mar-03	11:28:29	91	107	OK	
19-Mar-03	11:29:11	92	13.64	OK	
19-Mar-03	11:29:52	93	12.02	OK	
19-Mar-03	11:30:42	94	3.23	OK	
19-Mar-03	11:31:28	95	2.48	OK	
19-Mar-03	11:32:03	96	2.12	OK	
19-Mar-03	11:32:36	97	1.97	OK	
19-Mar-03	11:33:14	98	12.08	OK	
19-Mar-03	11:33:56	99	10.29	OK	
19-Mar-03	11:34:34	100	4.57	OK	
19-Mar-03	11:35:15	101	20.23	OK	

NSPS Surface Emissions Monitoring Data
XL Project
March 19, 2003
Waste Management, Inc.
New King George County Landfill, Permit No. 580

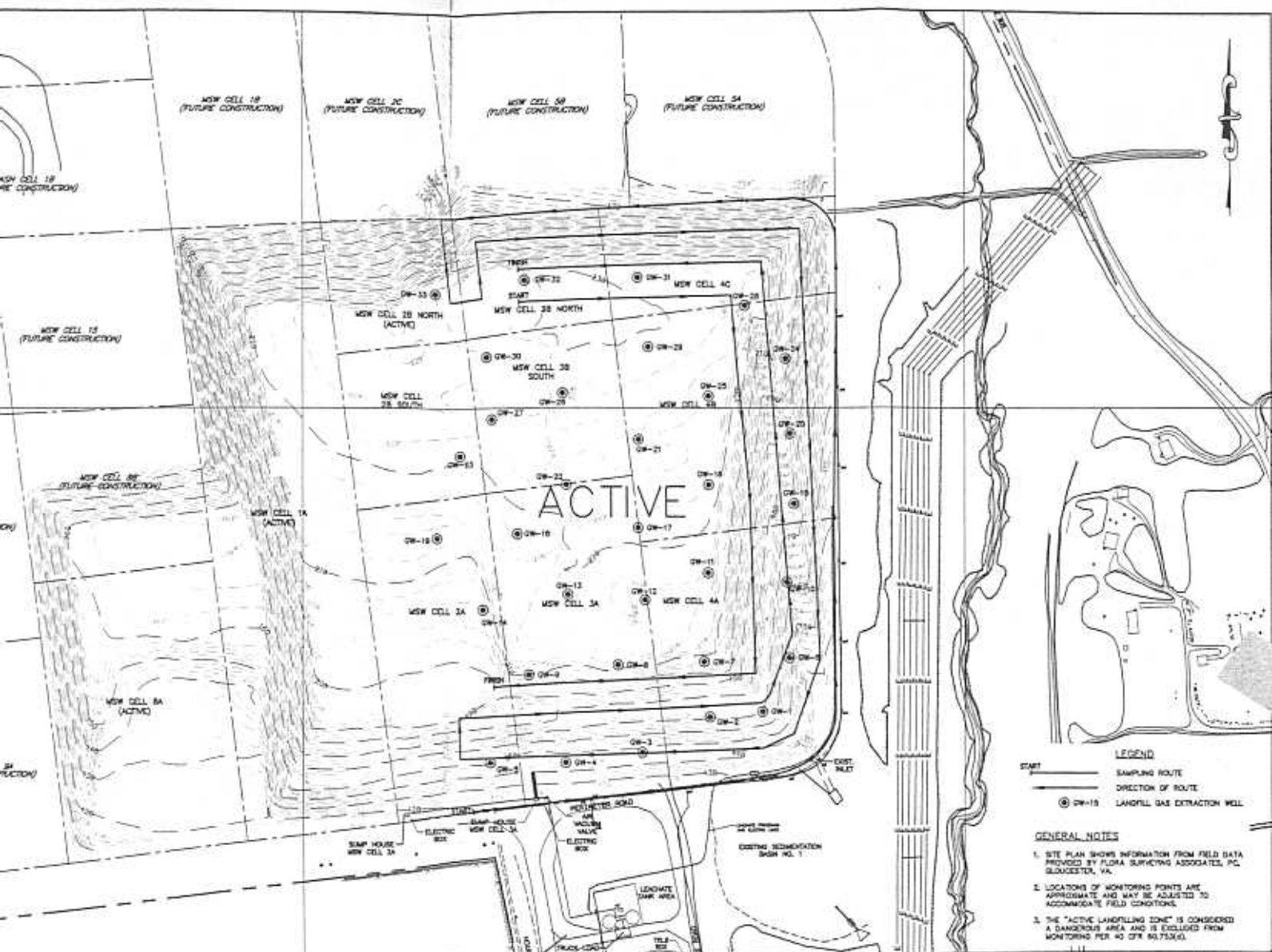
Date	Time	Tag #	Conc. Methane (ppm)	Pass/Fail	Notes
19-Mar-03	11:36:29	102	58.55	OK	
19-Mar-03	11:37:03	103	13.63	OK	
19-Mar-03	11:38:27	104	21.13	OK	
19-Mar-03	11:39:00	105	10.26	OK	
19-Mar-03	11:39:34	106	13.98	OK	
19-Mar-03	11:40:11	107	12.53	OK	
19-Mar-03	11:41:01	108	26.19	OK	
19-Mar-03	11:41:35	109	34.64	OK	
19-Mar-03	11:42:16	110	18.28	OK	
19-Mar-03	11:42:59	111	21.34	OK	
19-Mar-03	11:43:39	112	16.35	OK	
19-Mar-03	11:44:15	113	16.48	OK	
19-Mar-03	11:44:58	114	21.93	OK	
19-Mar-03	11:46:21	115	4.5	OK	
19-Mar-03	11:47:00	116	7.3	OK	
19-Mar-03	11:47:33	117	8.78	OK	
19-Mar-03	11:48:13	118	4.82	OK	
19-Mar-03	11:48:47	119	4.29	OK	
19-Mar-03	11:49:23	120	16.57	OK	
19-Mar-03	11:50:02	121	14.51	OK	
19-Mar-03	11:50:36	122	13.08	OK	
19-Mar-03	11:51:21	123	8.39	OK	
19-Mar-03	11:52:04	124	7.21	OK	
19-Mar-03	11:52:47	125	6.72	OK	
19-Mar-03	11:53:34	126	4.05	OK	
19-Mar-03	11:54:15	127	5.22	OK	
19-Mar-03	11:54:57	128	33.01	OK	
19-Mar-03	11:55:42	129	11.59	OK	
19-Mar-03	11:56:22	130	16.26	OK	
19-Mar-03	11:57:03	131	9.17	OK	
19-Mar-03	11:57:40	132	5.4	OK	
19-Mar-03	11:58:20	133	12.94	OK	
19-Mar-03	11:59:06	134	20.3	OK	
19-Mar-03	11:59:48	135	19.68	OK	
19-Mar-03	12:00:33	136	6.34	OK	
19-Mar-03	12:01:17	137	8.11	OK	
19-Mar-03	12:02:00	138	41.81	OK	
19-Mar-03	12:02:44	139	41.27	OK	
19-Mar-03	12:03:25	140	27.32	OK	

No. of points monitored: 140 Background Upwind: 1.52 ppm
No. of exceedance points: 0 Background Downwind: 2.16 ppm

NOTES:

Weather: Partly to mostly cloudy, highs in the mid 40s.
Barometric pressure average 30.03 inches of mercury

Instrument: Foxboro TVA-1000B; ID Number 18787439



LEGEND

START ——— SAMPLING ROUTE
 ——— DIRECTION OF ROUTE
 (S) OW-15 LANDFILL GAS EXTRACTION WELL

GENERAL NOTES

1. SITE PLAN SHOWS INFORMATION FROM FIELD DATA PROVIDED BY FLORA SURVEYING ASSOCIATES, P.C. GLOUCESTER, VA.
2. LOCATIONS OF MONITORING POINTS ARE APPROXIMATE AND MAY BE ADJUSTED TO ACCOMMODATE FIELD CONDITIONS.
3. THE "ACTIVE LANDFILLING ZONE" IS CONSIDERED A DANGEROUS AREA AND IS EXCLUDED FROM MONITORING PER 40 CFR 80.753(h).

DESIGNED: JAM	SCALE: 1"=300'	PROJECT NO: 464.19	WASTE MANAGEMENT, INC. - KING GEORGE COUNTY LANDFILL	DRAWING NO: 1
DRAWN: CAD			KING GEORGE, VIRGINIA	
CHECKED:			XL PROJECT - SURFACE EMISSIONS MONITORING PLAN - 03/19/03	
APPROVED:				
DATE: 03/24/03				

JONE
 ENGINEERING, INC.

4600 KNOXFORD AVENUE
 RICHMOND, VA 23150-2508
 PHONE: (804) 884-1500
 FAX: (804) 884-1501
 © 2003 JONE Engineering, Inc.
 All rights reserved.



Waste Industry Experts

Joyce Engineering, Inc.
4808 Radford Ave
Richmond, VA 23230

tel: 804/355-4520
fax: 804/355-4282

www.JoyceEngineering.com

June 23, 2003

Mr. Douglas Mandeville
Senior Staff Engineer
Geosyntec Consultants, Inc.
10015 Old Columbia Road
Suite A-200
Columbia, Maryland 21046

Re: New King George County Landfill Permit - No. 586
XL Project Sampling Results - April 2003
JEI Project No. 464.00/Task No. 20/File Nos. 4.2 and 6.2

Dear Mr. Mandeville:

Please find attached the April 2003 results for leachate and landfill gas sampling and monitoring conducted at the New King George County Landfill for the XL Program. A brief summary of each activity is presented below.

Leachate Sampling

On April 16, 2003, Joyce Engineering, Inc. (JEI) personnel collected leachate samples for the XL Program. Five leachate samples were collected from leachate collection sumps, and one sample was collected from the leachate holding tank during the April 2003 leachate sampling event. In addition, a field blank was collected, and a laboratory-supplied trip blank accompanied the samples. After collection, the samples were placed in a cooler on ice and shipped to Severn Trent Laboratories (STL) of Amherst, New York, and Microbial Insights (MI) of Rockford, Tennessee, for analysis of biochemical oxygen demand (BOD), sulfate, chemical oxygen demand (COD), chloride, total organic carbon (TOC), potassium, volatile organic compounds, volatile organic acids, semi-volatile organic compounds, RCRA hazardous metals, ammonia-nitrogen, phosphorus, total Kjeldahl nitrogen (TKN), total dissolved solids (TDS), nitrate, nitrite, sulfide, cyanide, total phosphate, ortho-phosphate, sodium, magnesium, calcium, and bicarbonate/carbonate. In addition, field measurements of pH, specific conductance, and temperature were collected at the time of sampling.

Field sampling forms, chain-of-custody form, and laboratory certificates-of-analysis for the April 2003 leachate sampling event are presented in Attachment 1.

Landfill Gas Extraction Well Monitoring

On April 17, 2003, JEI personnel collected landfill gas (LFG) measurements of methane, carbon dioxide, oxygen, balance gases, and hydrogen sulfide from 26 LFG extraction wells. In

Mr. Douglas Mandeville
June 23, 2003
Page 2 of 3

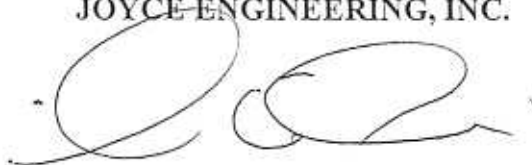
addition, measurements of temperature, flow rate, static vacuum, and differential pressure were recorded. Measurements were recorded using a CES-LandTEC GEM 500 instrument, which was calibrated with a known calibration standard before and after use during the event. A table displaying the LFG monitoring results is presented in Attachment 2.

Landfill Gas Sampling

On April 16, 2003, JEI personnel collected samples from the LFG collection system. Four 1-liter summa canister samples were collected from the western, central, and eastern header pipe of the LFG collection system, and from a location downstream of the LFG collection system blower. The samples were sent to STL of Los Angeles, California, for analysis of volatile organic compounds by EPA Method TO-15, and methane, oxygen, carbon dioxide, nitrogen, and non-methanogenic organic compounds (NMOCs) by ASTM methods. The chain-of-custody form and laboratory certificates-of-analysis for the April 2003 LFG samples are presented in Attachment 3.

Please feel free to contact me at 804-355-4520 or at mwilliams@joyceengineering.com if you have any questions concerning the XL Program results presented herein.

Sincerely,
JOYCE ENGINEERING, INC.



Michael G. Williams, C.P.G.
Senior Project Hydrogeologist

Attachments:

- Attachment 1 - Leachate Field Sampling Forms, Chain-of-Custody Forms, and Laboratory Certificates-of-Analysis: April 2003
- Attachment 2 - Landfill Gas Extraction Well Monitoring Data
- Attachment 3 - Landfill Gas Field Sampling Forms, Chain-of-Custody Form, and Laboratory Certificates-of-Analysis: April 2003

C: James Stenborg, P.E., WMI
Howard Burns, WMI
David McMillan, JEI (letter only)

APPENDIX E - GROUNDWATER QUALITY COMPLIANCE



Joyce Engineering, Inc
4808 Radford Ave
Richmond, VA 23230

tel: 804/355-4520
fax: 804/355-4282

www.JoyceEngineering.com

July 14, 2003

Mr. James Stenborg, P.E.
c/o Waste Management, Inc.
10376 Bullock Drive
King George, Virginia 22485

Re: King George County Landfill, Permit No. 586
XL Project
JEI Project No. 464.21 File No. 1.2

Dear Jim:

Per your request, Joyce Engineering, Inc. has compared the available groundwater monitoring data through June 2003 for the uppermost aquifer compliance monitoring network at the King George County Landfill, Permit No. 586, to the current Maximum Contaminant Levels (MCL) for the constituents that are listed in Table 1 of 40 CFR Part 258.40. I understand that this comparison is required pursuant to the Site Rule Making Requirements for the XL Project.

Based on my review, the following constituents in Table 1 of 40 CFR Part 258.40 have been detected at concentrations that exceed the current MCL; however, it is noted that the detected concentrations were less than the facility background concentrations at the time of detection. Subsequently, the concentrations did not represent statistically significant concentrations and the monitoring program at the King George County Landfill, Permit No. 586, was allowed to continue in the Detection Monitoring Program.

Constituent	Current MCL (ug/L)	Sample Location	Sample Date	Monitoring Result (ug/L)
Arsenic	10.0	TW02U	8/8/96	20
		TW06D	6/21/96	33
		TW11D	12/17/02	12
Cadmium	5.0	TW02U	3/18/99	16
			12/16/96	14
			3/19/97	12
			12/29/97	9.2
			1/17/97	8.5
			2/13/97	8.4
			9/5/97	7
			9/8/98	6.4
		TW06D	6/21/96	8.9

Mr. Jim Stenborg
July 14, 2003
Page 2

Constituent	Current MCL (ug/L)	Sample Location	Sample Date	Monitoring Result (ug/L)
Cadmium	5.0	TW13D	3/19/99	18
			12/17/98	9.5
			6/16/98	6.8
Lead	15.0	TW01U	3/10/03	31
			12/11/00	20
		TW02U	8/8/96	51
			6/21/96	20

Note that the wells designated with the postscript "U" are considered upgradient wells at this facility. If you have any questions, please contact me at 804-355-4520.

Sincerely
JOYCE ENGINEERING, INC.

Michael G. Williams, C.P.G.
Senior Project Hydrogeologist

Cc: Doug Mandeville, Staff Engineer, Geosyntec Consultants, Inc.,
10015 Old Columbia Road, Suite A-200, Columbia, Maryland 21046

P:\Waste Management\Virginia\King George County New - WMI\Environmental\Correspondence\Part 258.40 Review Letter July 14 2003
update.doc

